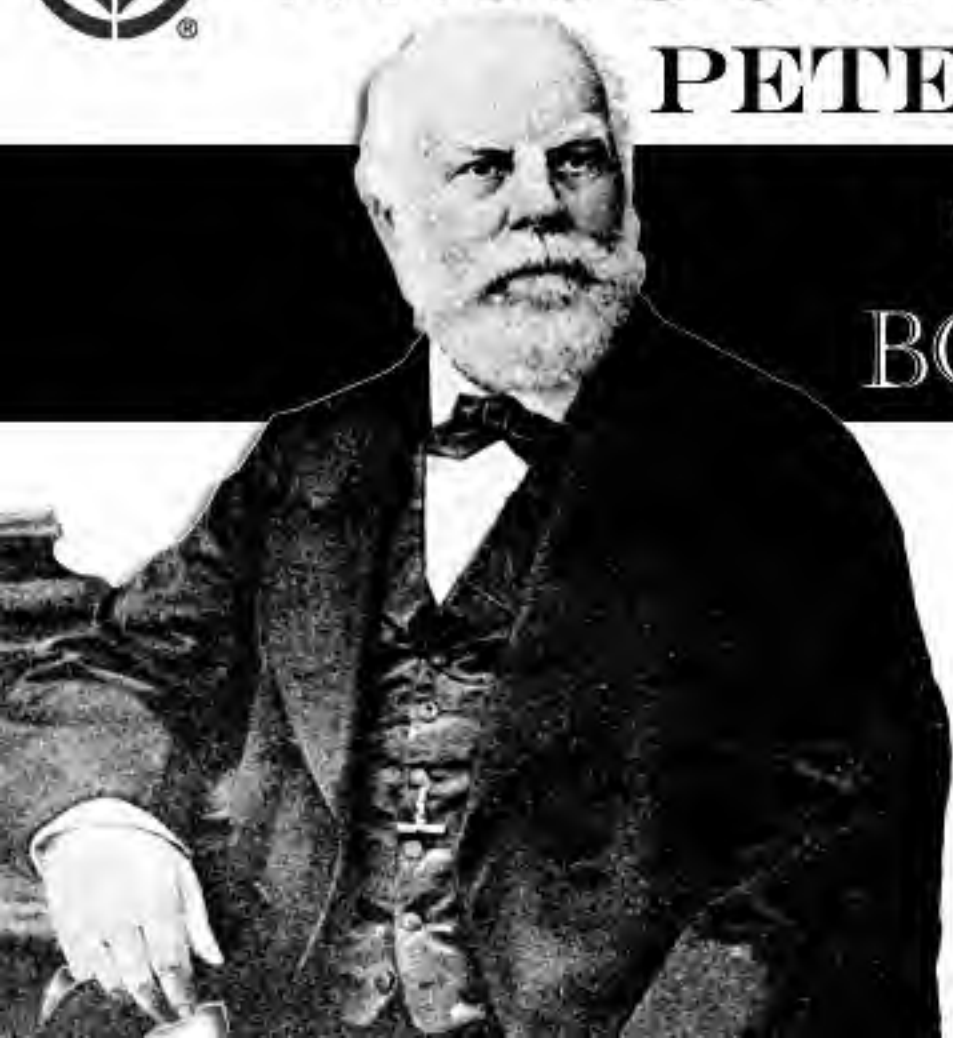




MISSOURI BOTANICAL GARDEN  
PETER H. RAVEN LIBRARY



GEORGE ENGELMANN  
BOTANICAL NOTEBOOKS

*Pagination Note:*

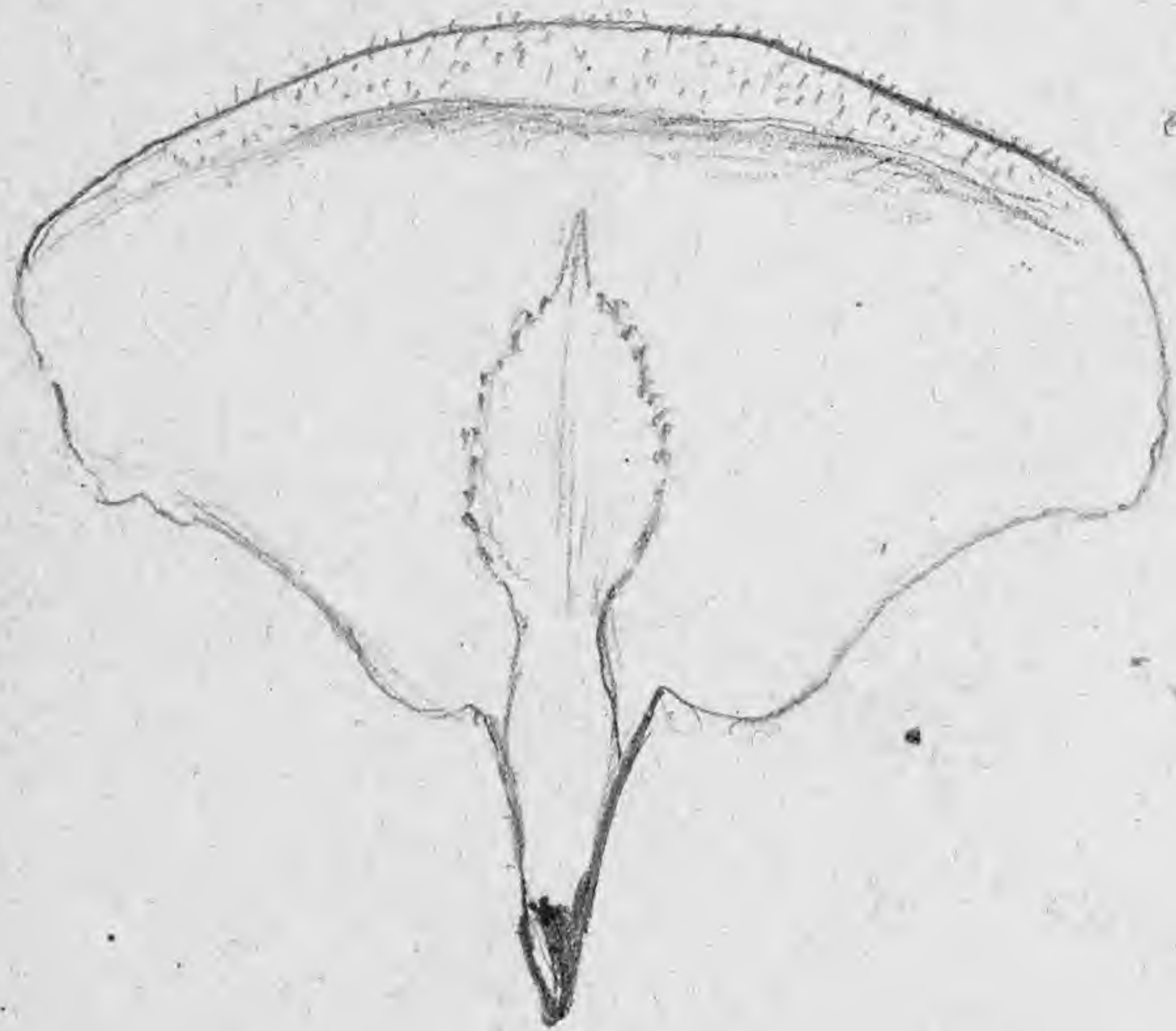
*Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.*

"*A. amabilis*"

Sept 5 1870

Big Trees, Bolander

*A. magnifica*, Murry 1863 !



edge woolly, very narrowly  
turned up

scales without pedicel  
width to height =  $42 : 25$   
 $3\frac{1}{3} : 2$



seed 14-15 mm long 6 mm wide  
 $2\frac{1}{2}$  times as long as wide  
exterior valve of wing with  
a prominent tooth, covering not  
quite  $\frac{2}{3}$  of (seed length of)

x 2



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN

12647

CHEMIST

ALEX. LEITCH,  
APOTHECARY & CHEMIST,  
Cor. 4th and Olive Sts., St. Louis.

ALL  
THE NEW REMEDIES  
CONSTANTLY ON HAND

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



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BOTANICAL  
GARDEN

scale 36: 21  
=  $3\frac{1}{2}$  2

"*Abies amabilis*"

April 22<sup>nd</sup> 1871

Silver Mountain trail Sierras of California

H.W. Brewer

Cone 5 inches long  $2\frac{3}{4}$  diam.



Cones always 6-8 inches  
long and half as wide  
purple, until ripe  
Lemon, April 1871



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN

12648

Leitch & Corlies

CORRIGANS

South West  
Corner Fifth  
and Market  
Streets

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

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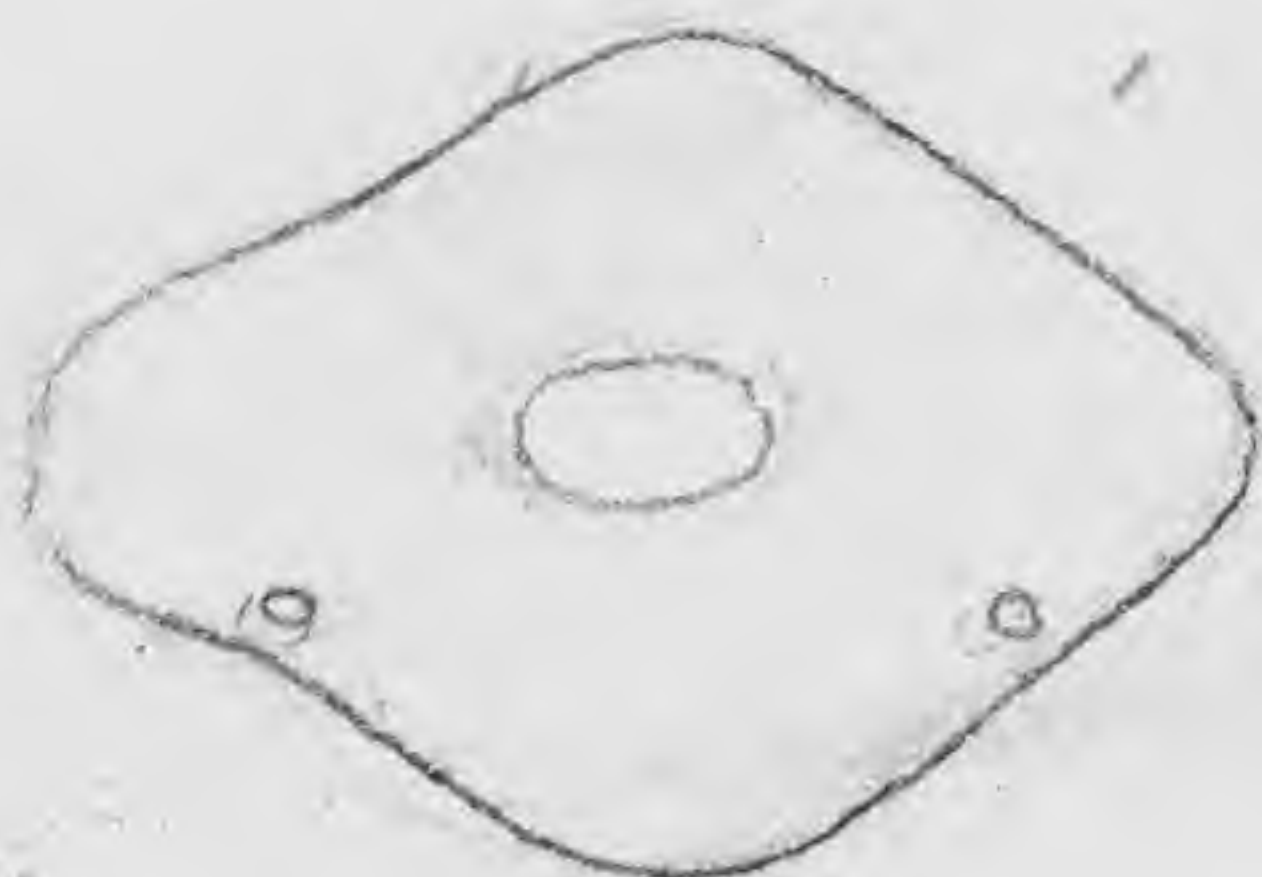
MISSOURI  
BOTANICAL  
GARDEN

"*A. ambigua*"

April 9 1872

male flowering plant, Big Trees, Bolander

X 10



0

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cm

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MISSOURI  
BOTANICAL  
GARDEN

12649

**Leitch & Corlies**

**DRUGGISTS**

South-west  
Corner Fifth and Market  
Streets

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

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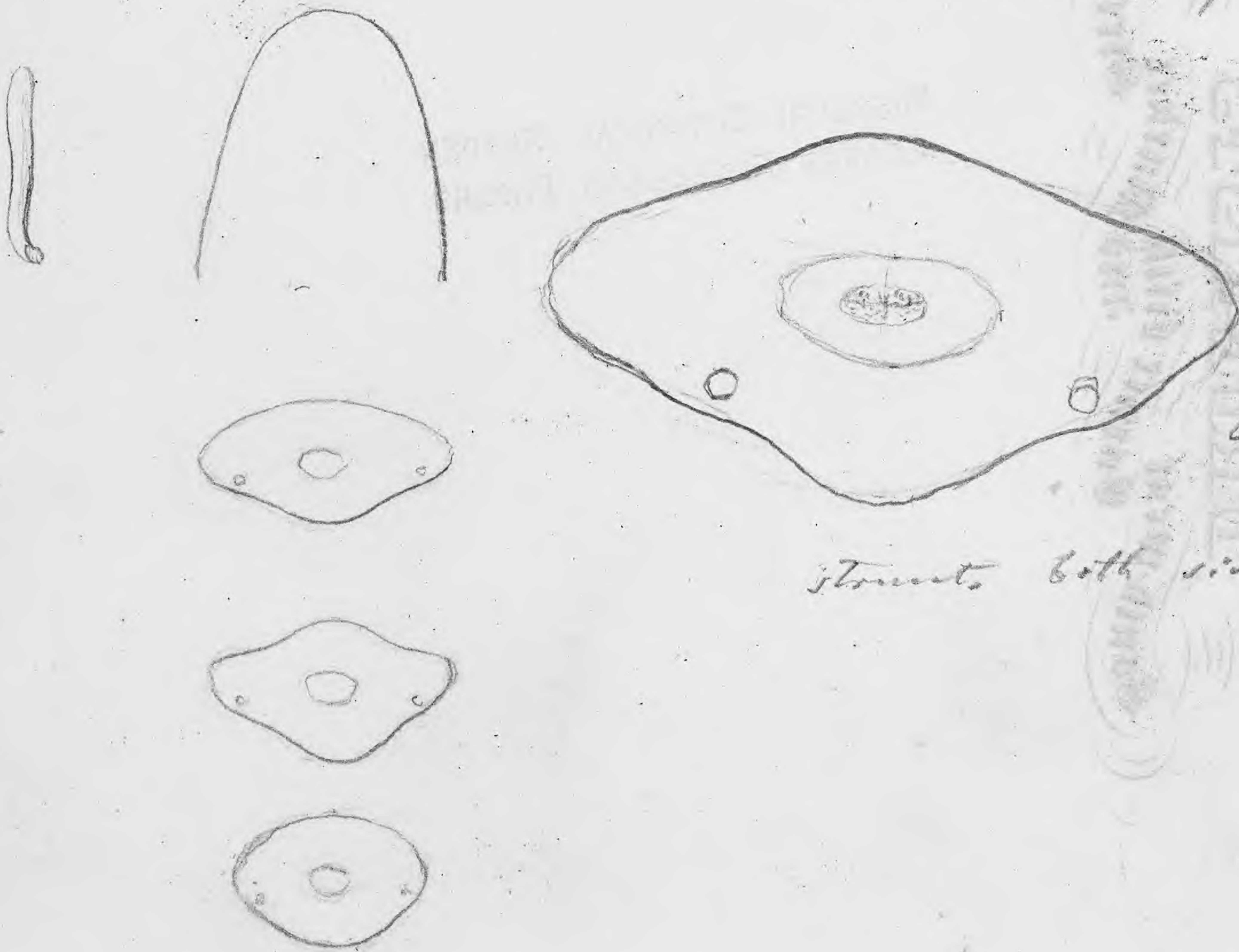
MISSOURI  
BOTANICAL  
GARDEN

"*A. nobilis*"

April 13 1872

California, Lobb, in Herb Kew

"tree 150-200 feet high"



x30

Oct 17 '75

stomach both sides



0 1 2 3 4 5 6 7 8 9 10

cm

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MISSOURI  
BOTANICAL  
GARDEN

12650

Leitch & Corlies

DRUGGISTS

South-west  
Corner Fifth  
and Market  
Streets

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0

1

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cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN

"*Abies nobilis*"

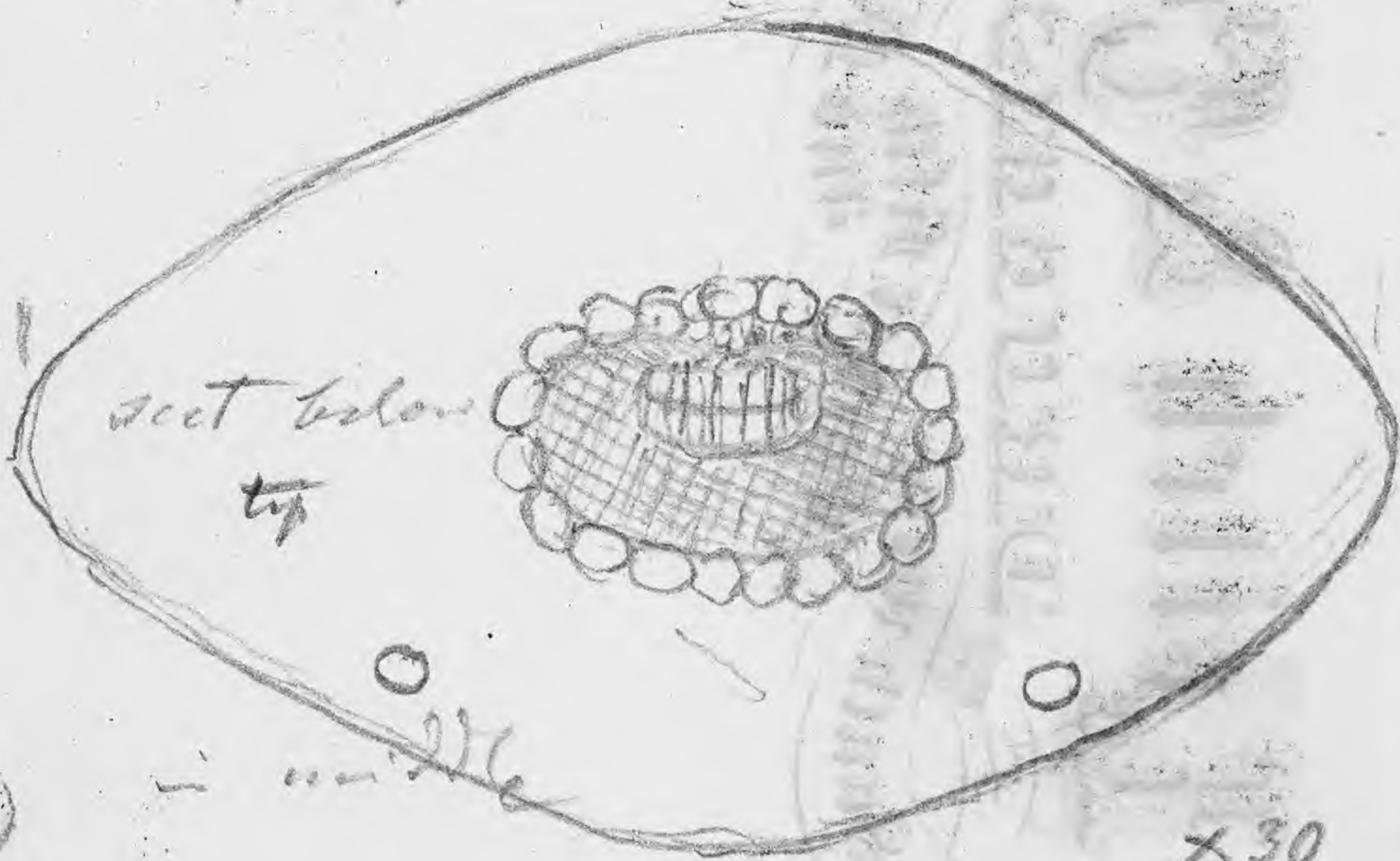
April 13 1872

California, Lower - Herb - Kew



X 10

tip of leaf



X 30

Oct 19 1875

above base



0 1 2 3 4 5 6 7 8 9 10

cm

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BOTANICAL  
GARDEN

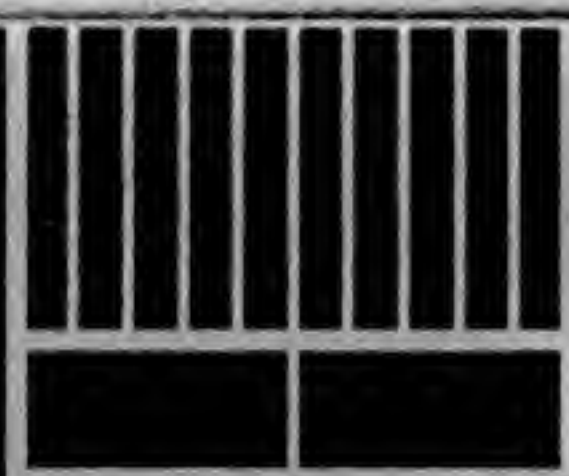
12651

Leitch & Corlies

DRUGGISTS

South-west  
Corner Fifth and Market  
Streets

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

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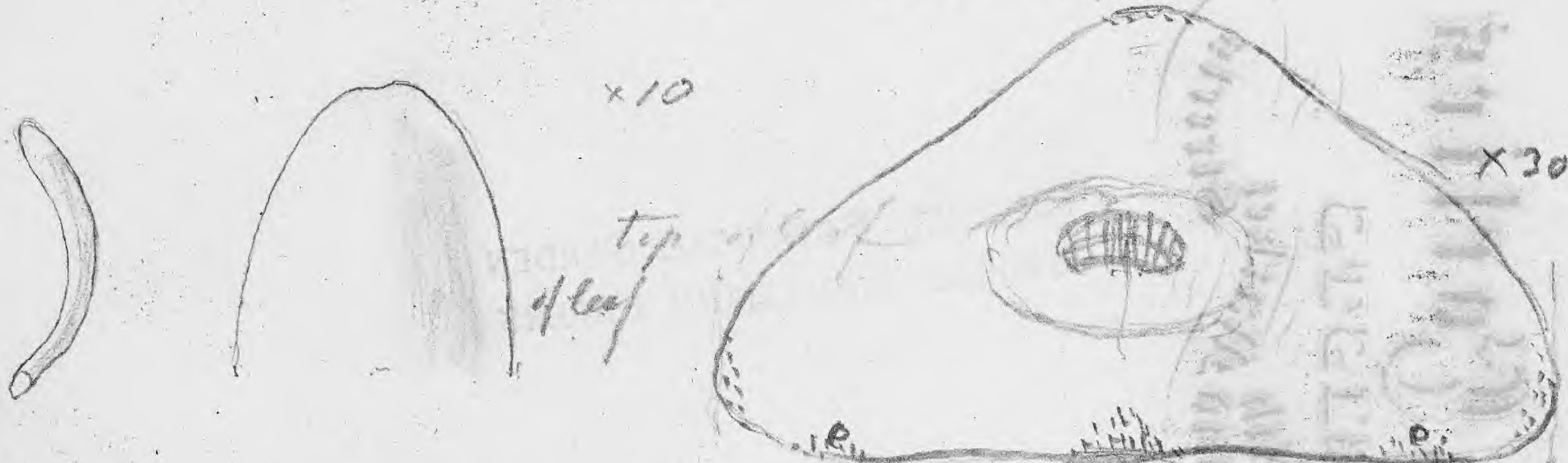
MISSOURI  
BOTANICAL  
GARDEN

Abies

April 13 1872

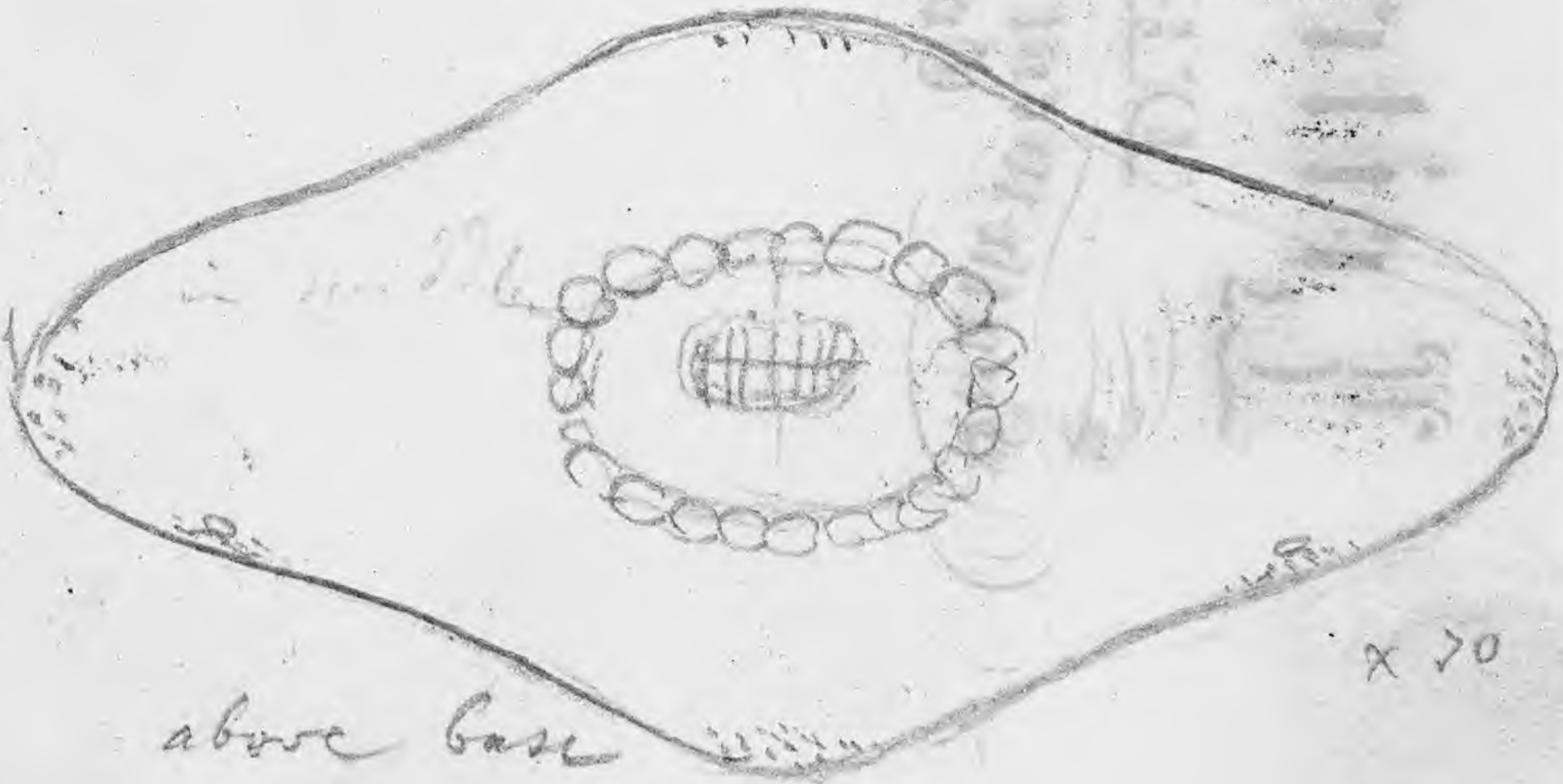
Fremont leg N. 32

Dec. 1845



sect of leaf  
near tip

19 Oct 1875



0 1 2 3 4 5 6 7 8 9 10

cm

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MISSOURI  
BOTANICAL  
GARDEN

12652

Leitch & Corlies

DRUGGISTS

South-west  
Corner Fifth  
and Market  
Streets

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GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

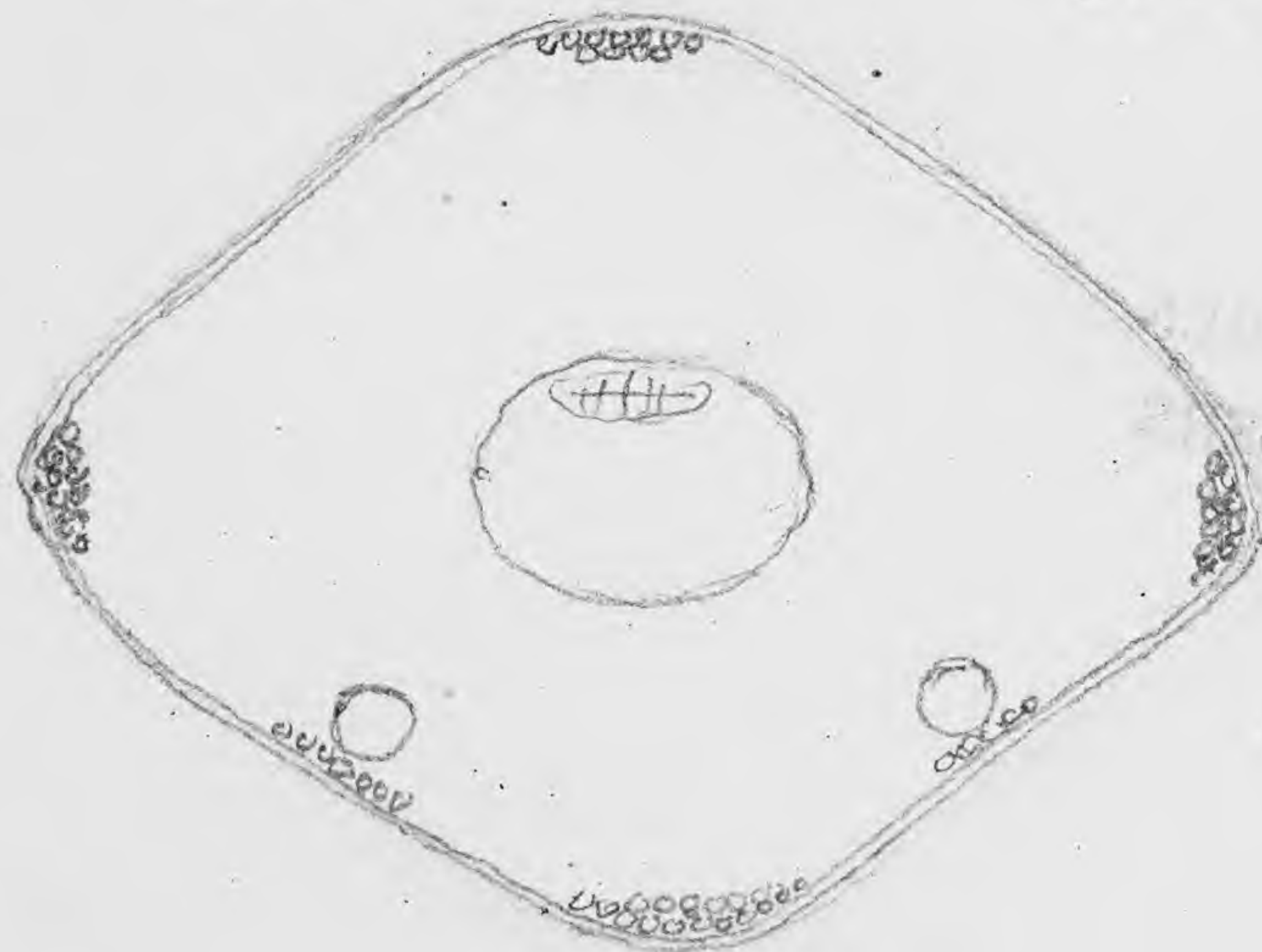
"Abies nobilis"

March 30 1881

x 30

Herb Acad. Philad. 1879

leaf next to the cone



MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS  
1881



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

12653

Leitch & Corlies

DRUGGISTS

South-west Fifth and  
Market Streets

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GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

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MISSOURI  
BOTANICAL  
GARDEN

"*Abies robusta* s. *magnifica*"

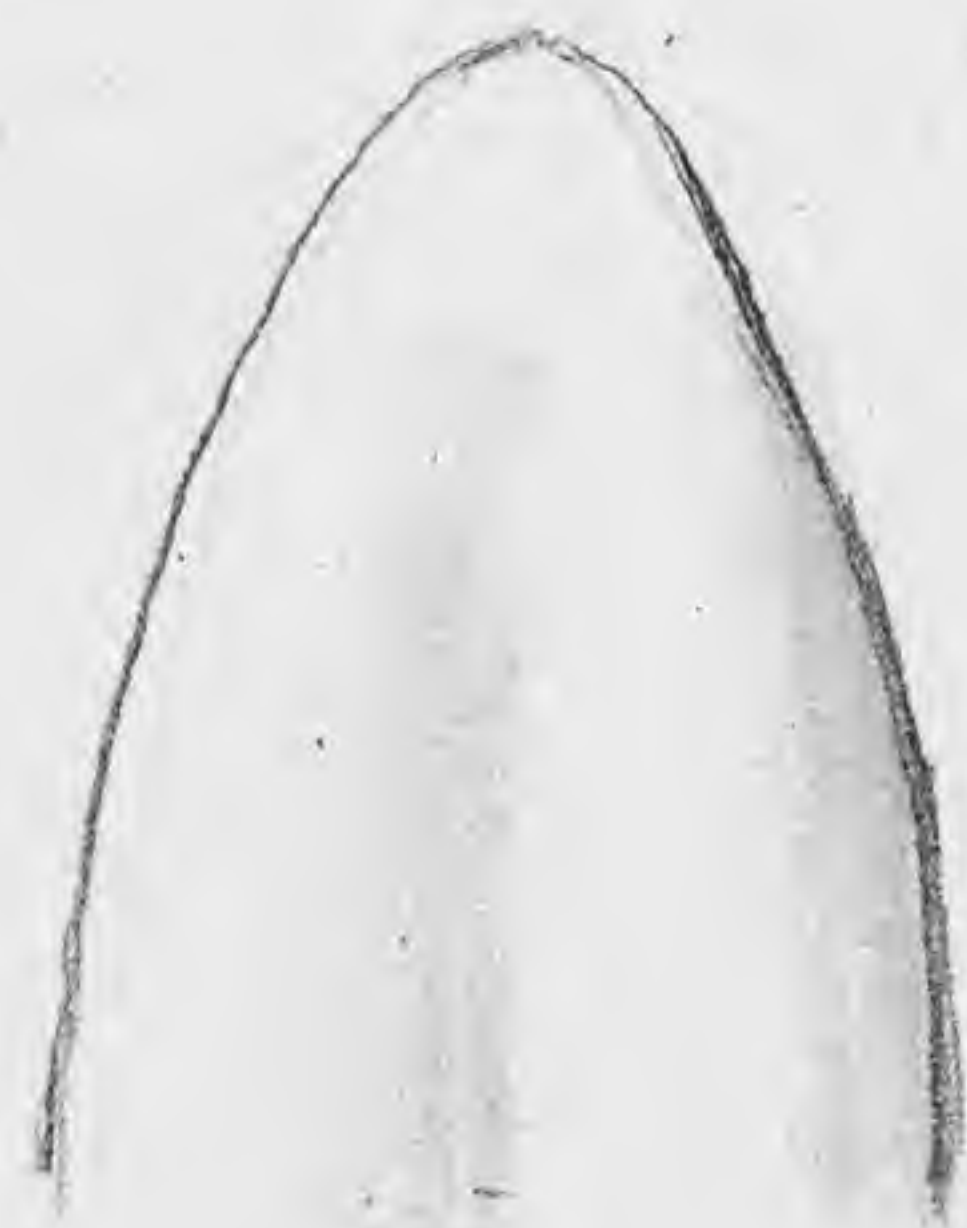
April 8 1872

Herb. bot. Edinburgh 1869

a young tree, 5 feet high  
from California land



x10



x10



sect below tip



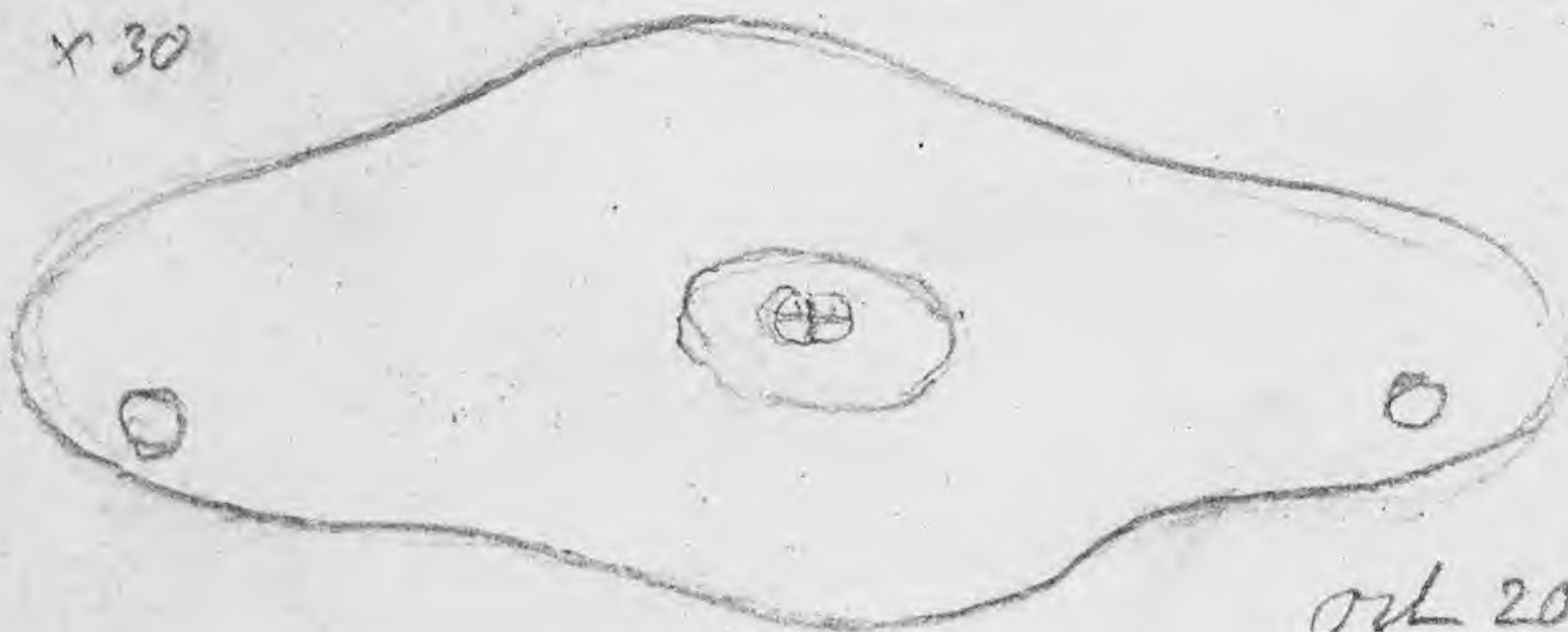
in middle



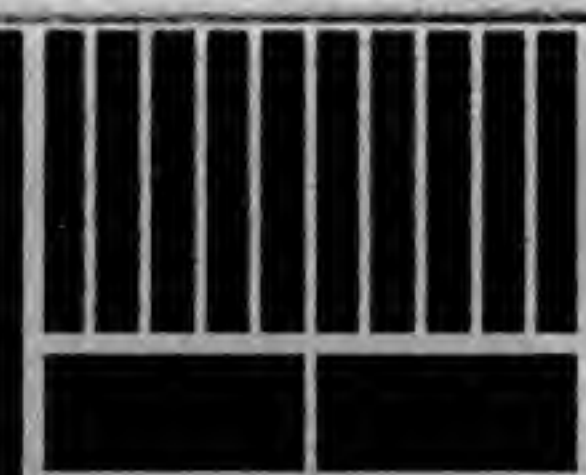
in lower part



x30



Oct 20 1875



0 1 2 3 4 5 6 7 8 9 10

cm

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BOTANICAL  
GARDEN

12654-

Leitch & Corlies

DRUGGISTS

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Corner Fifth  
and Market  
Streets

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0 1 2 3 4 5 6 7 8 9 10

cm

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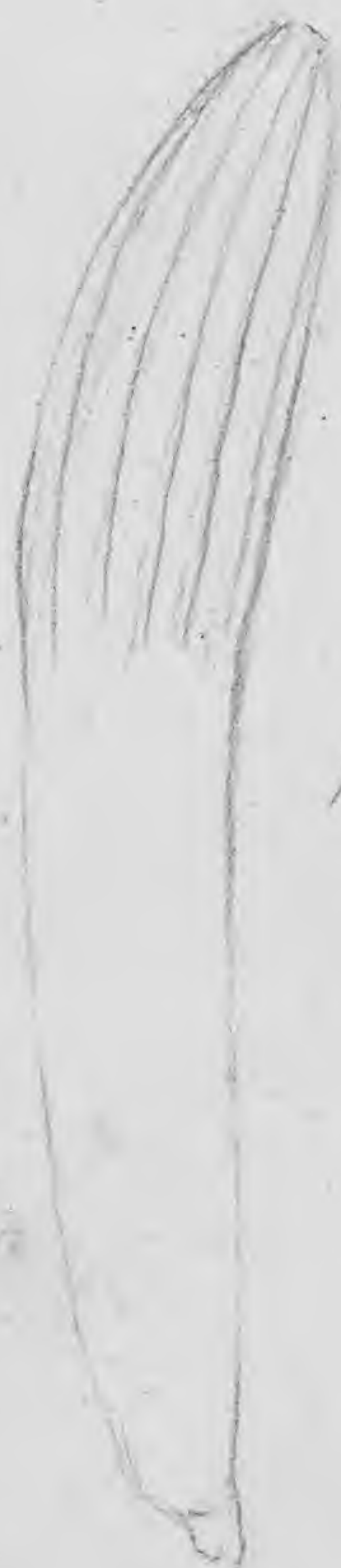
*Alnus magnifica*

Nov 2 1874

Cone no. 2 from H. Bolander Nov 1874

under the name of *Al. Amabilis*

Cone 6 inches long 3 in diameter



embryo

x4



section

10 Cotyled.

Nov 25 74



0

1

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10

cm

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BOTANICAL  
GARDEN

HENRY EHRHARDT,  
PHARMACEUTICAL CHEMIST,

No. 301 South Fifth Street, Cor. Myrtle, ST. LOUIS.

No.

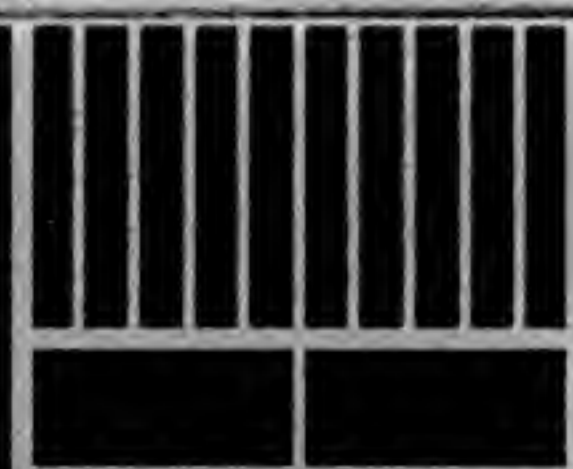
Date

187

*Rx*

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

12655



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cm

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BOTANICAL  
GARDEN

*Abies magnifica*

July 3<sup>rd</sup> 1874

Big Trees, Calif - Bolander



Strobili

involucres stiff  
with resin



front



upper side



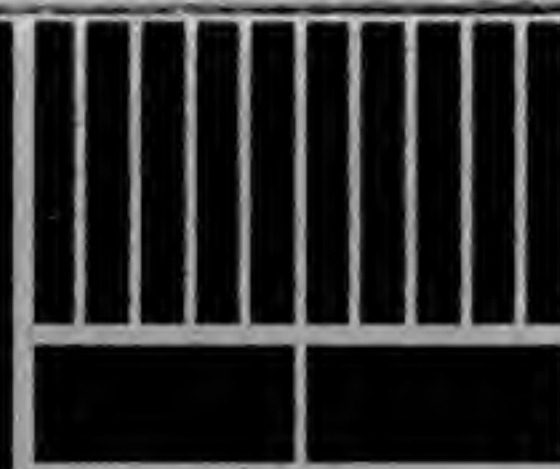
lower side



lateral

anther x 10

Pollen (34)  $\frac{28-31}{280} = (0.12) 0.14 - 0.15$  mm long



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

12656

R. C. HARRISON,

508 Leffingwell Avenue,

**D**ruggist & **A**pothecary

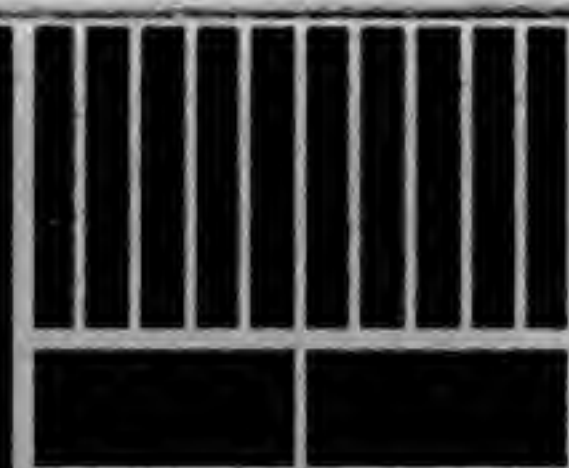
MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS

G. F. ENGLEMAN, M.D.,  
3003 LOCUST STREET.

280  
280  
280  
3080  
28  
336  
28  
364  
28  
22  
420

28  
31  
33  
36  
39  
42  
10  
11  
12  
13  
14  
15  
280 X 280 = 78400

280  
10  
41



0 1 2 3 4 5 6 7 8 9 10

cm

copyright reserved



MISSOURI  
BOTANICAL  
GARDEN

*A. magnifica*

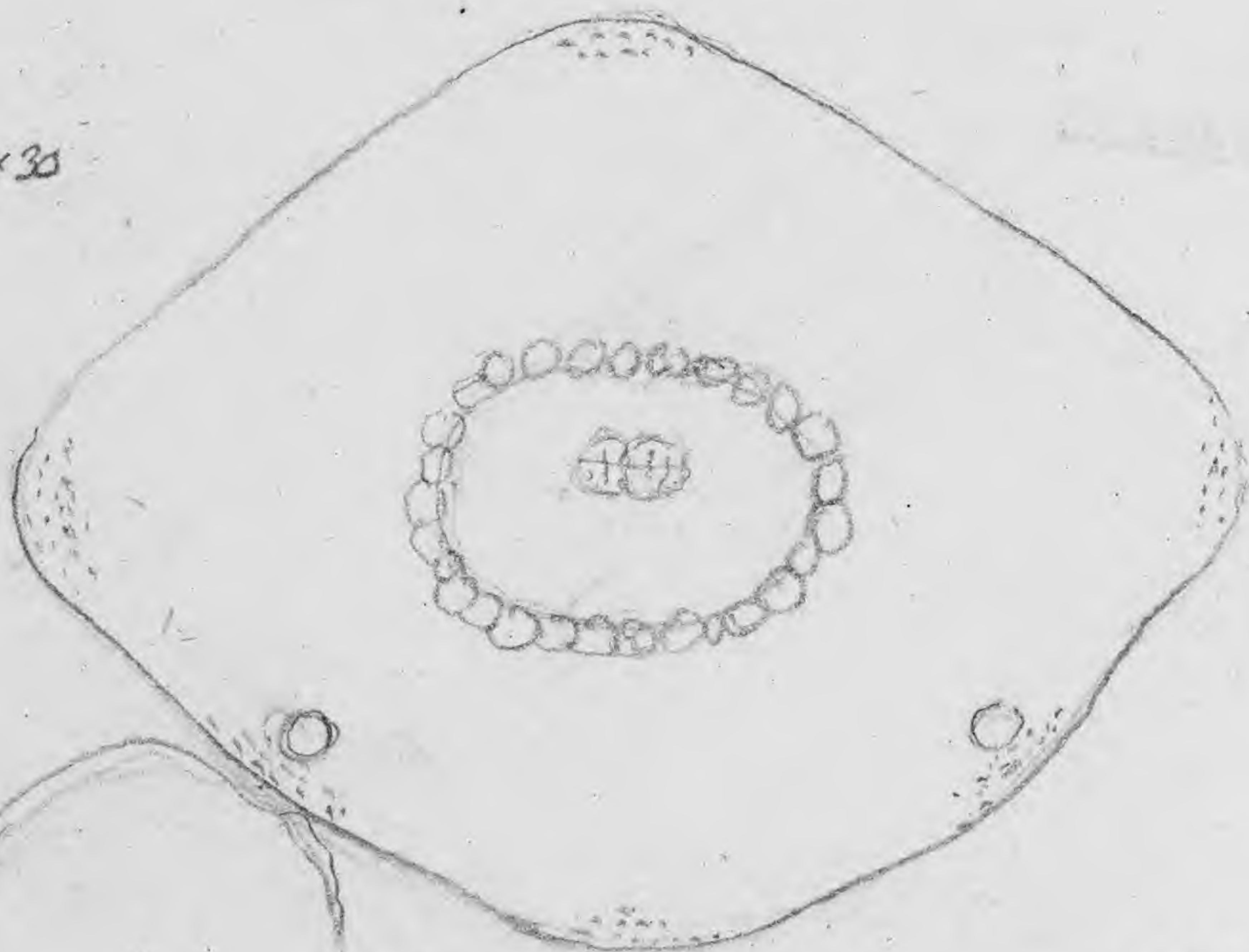
Sierra Nevada

Oct 21 1875

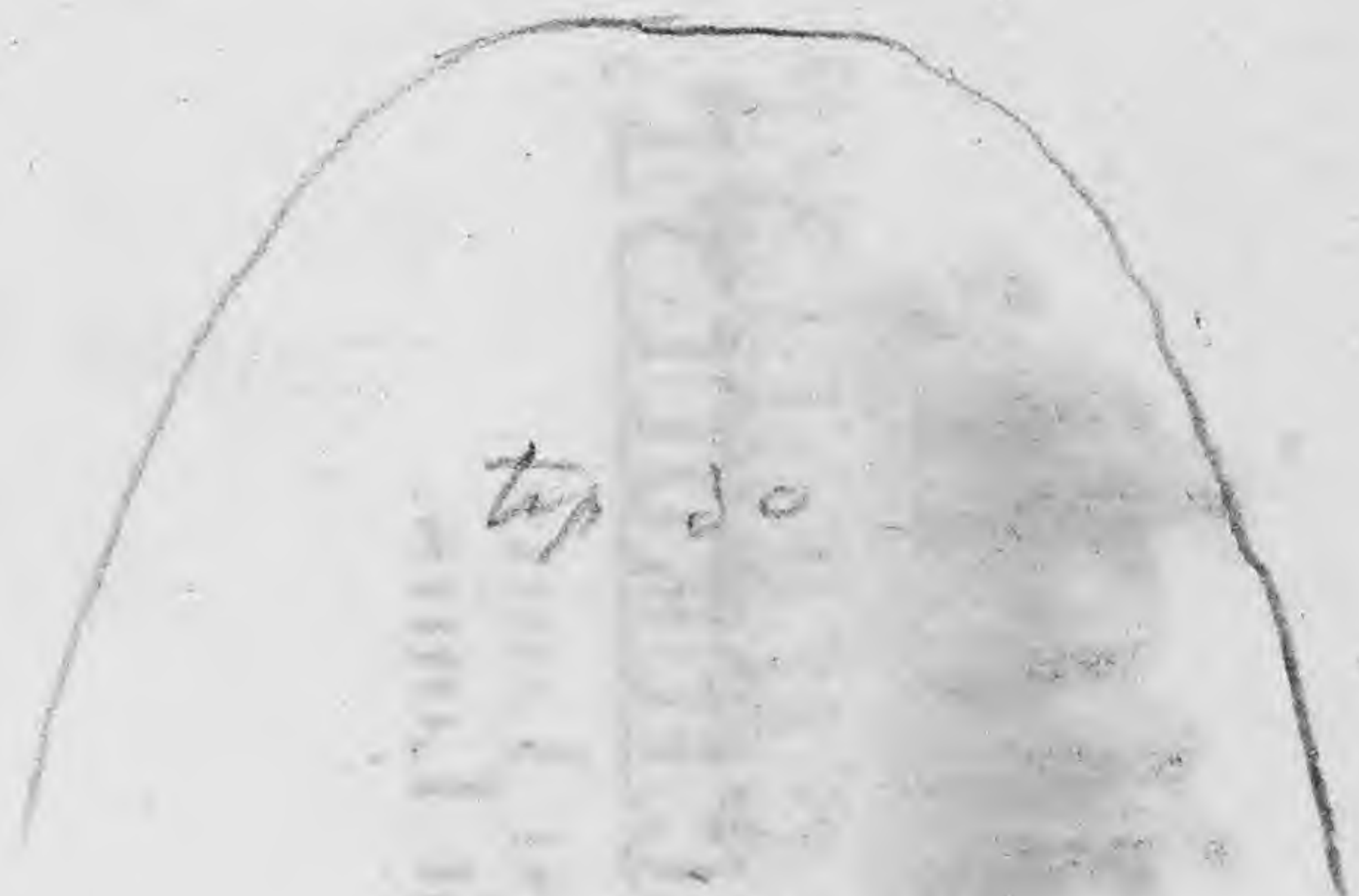
stomata all over

J. G. Lemmon 1874

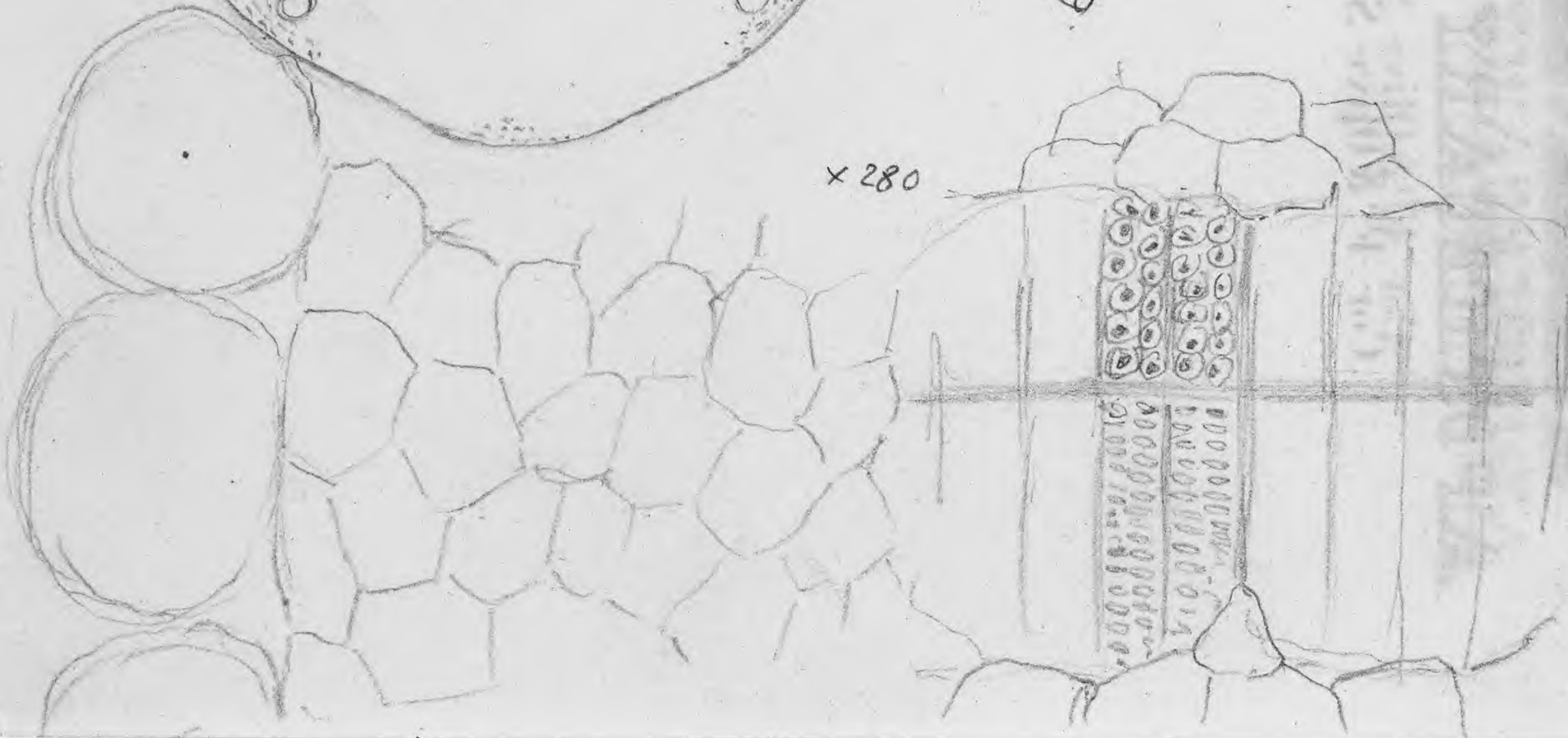
x 30



top do



x 280



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

Alex. Leitch,

APOTHECARY & CHEMIST,

Cor. 4<sup>th</sup> & Olive Sts., St. Louis.

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GEORGE ENGELMANN PAPERS

12657



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

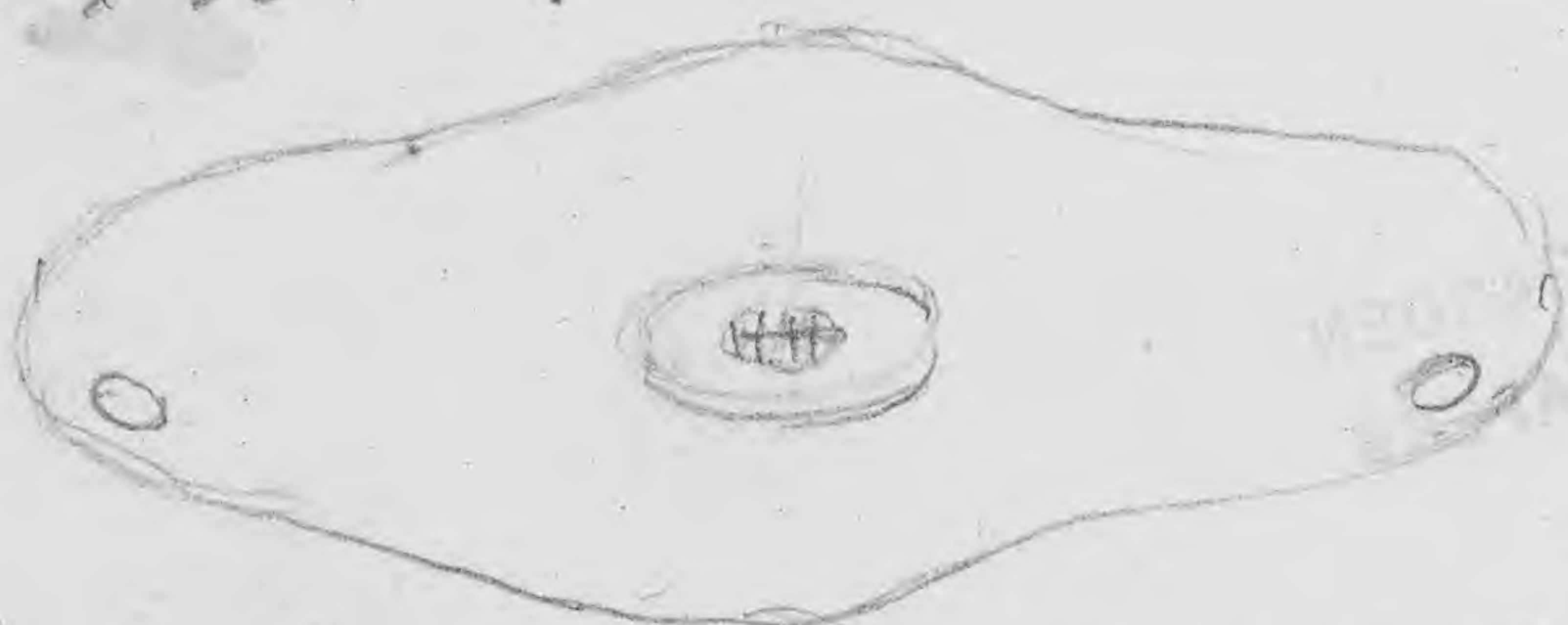
"*Abies magnifica*"

Febr 19 1876

Hort. Edinburgh Aug 30 1869

young tree 3-4 feet high

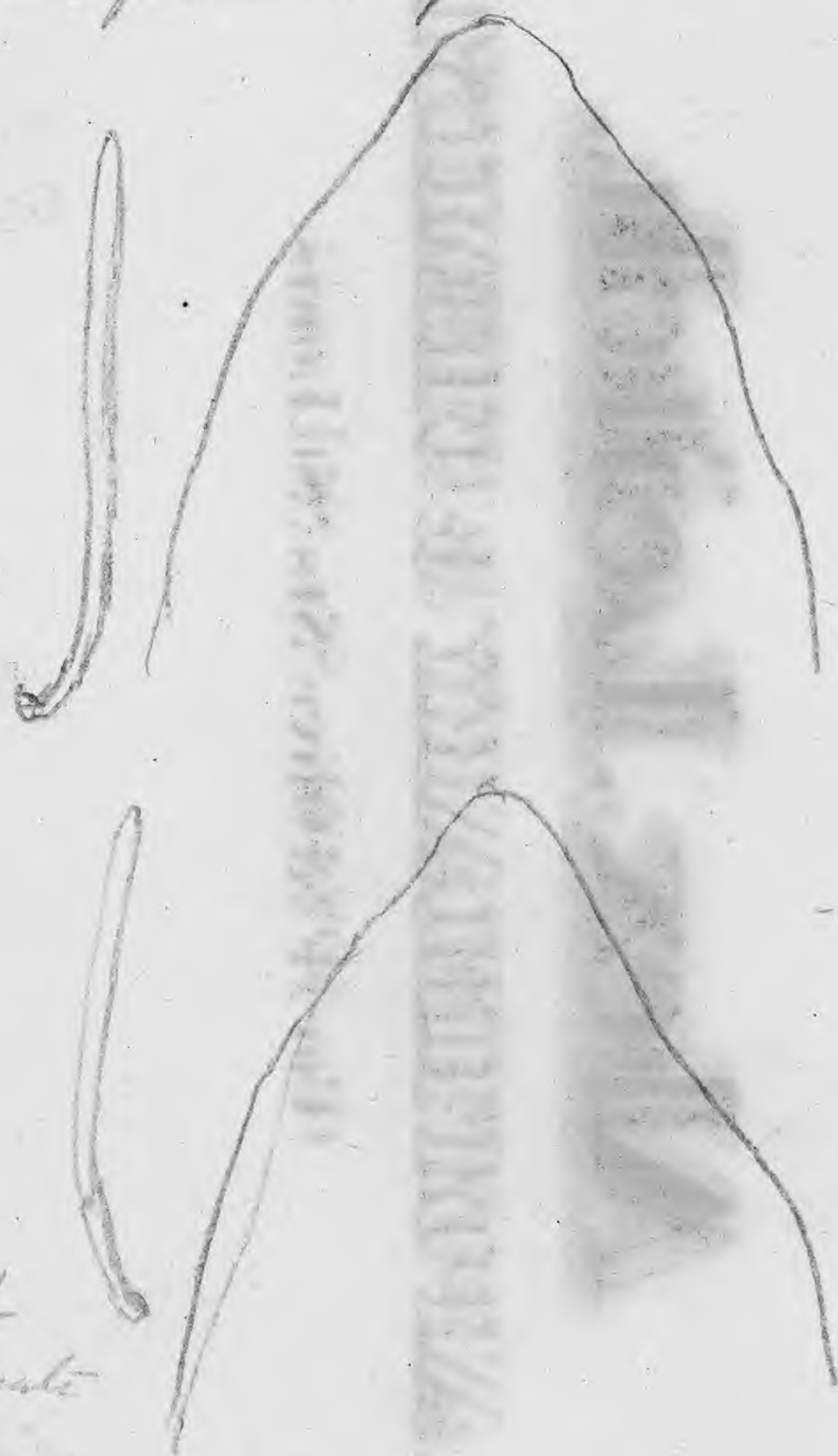
x 30



5-7 lines of stomata in each band below  
12-14 lines on upper side



on upper side 10-12 lines of  
stomata  
on lower side 2 bands, of  
4-5 lines each



5-7  
12-14



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

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Cor. 4<sup>th</sup> & Olive Sts., St. Louis.

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GEORGE ENGELMANN PAPERS

12658



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

a,

*Amagifera*  
leaves of a young tree  
Sierra Valley Cal  
Lemmon

Febr 19 1876

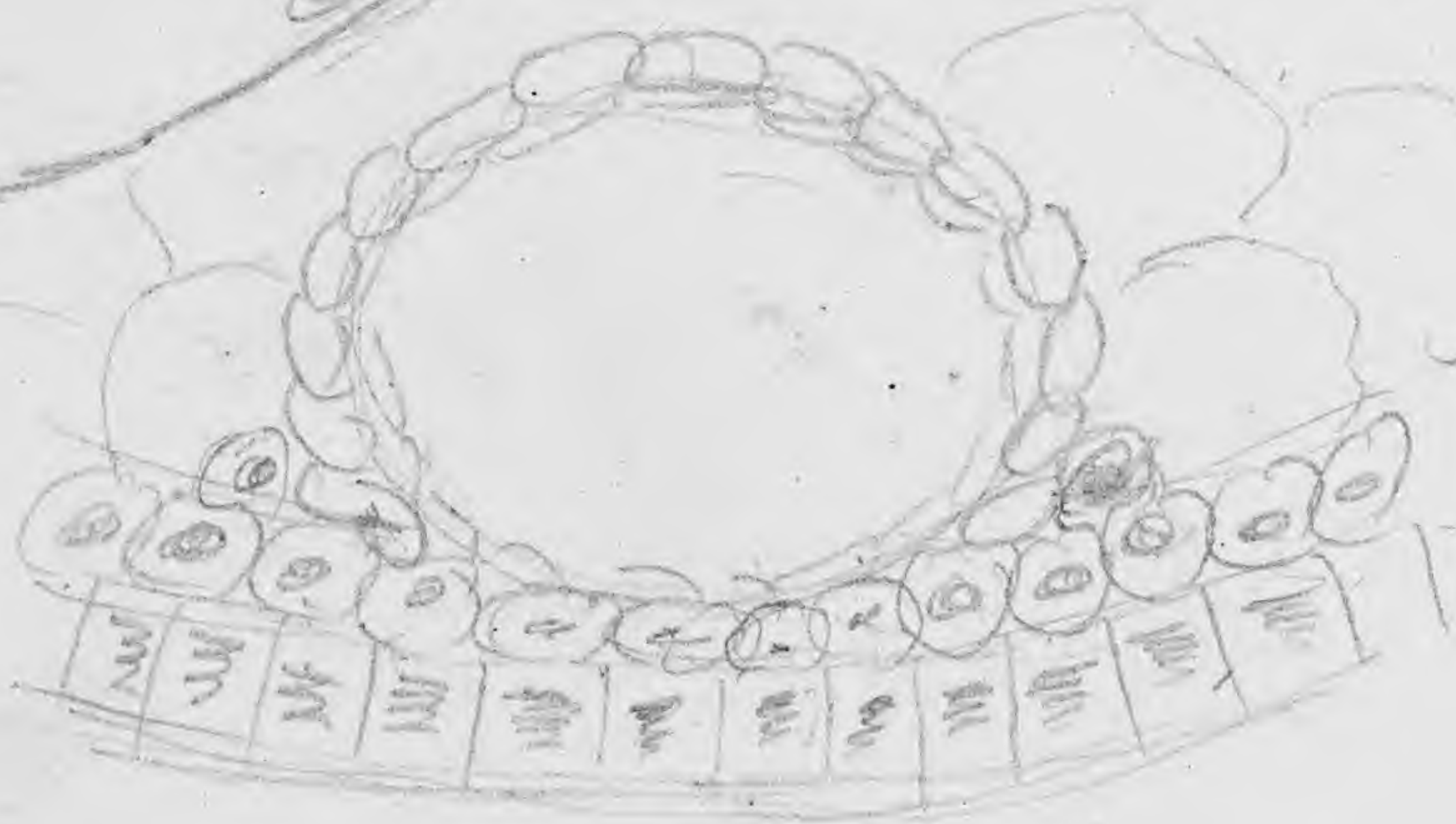
1875

x 30

hypoderm only  
on 4 edges

12-15 series of  
stomata above  
2 bands of 5-6 below

x 150



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

12659

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GEORGE ENGELMANN PAPERS  
GEORGE ENGELMANN PAPERS



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cm

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MISSOURI  
BOTANICAL  
GARDEN

2.

*A. magnifica*

Febr 19 1876

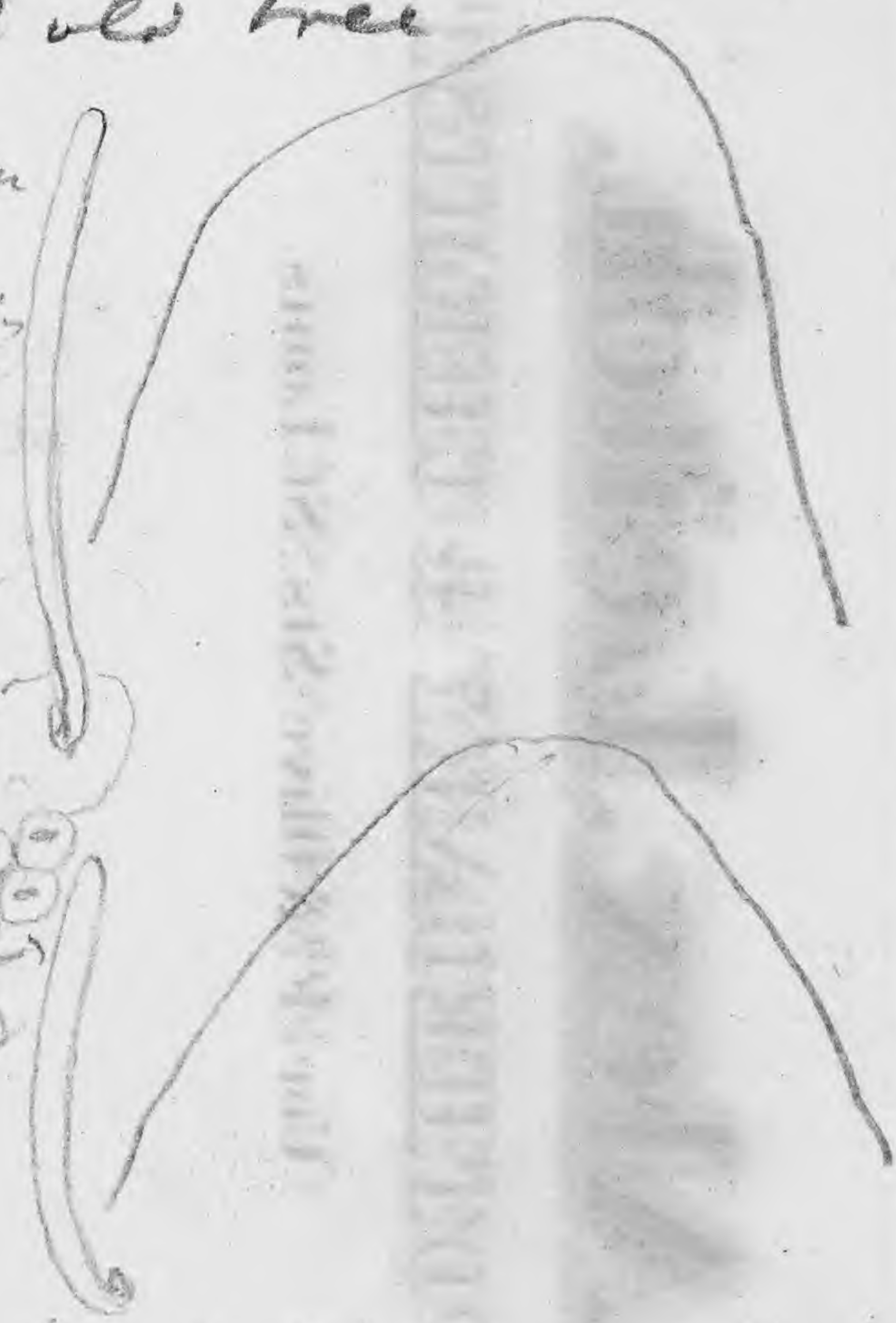
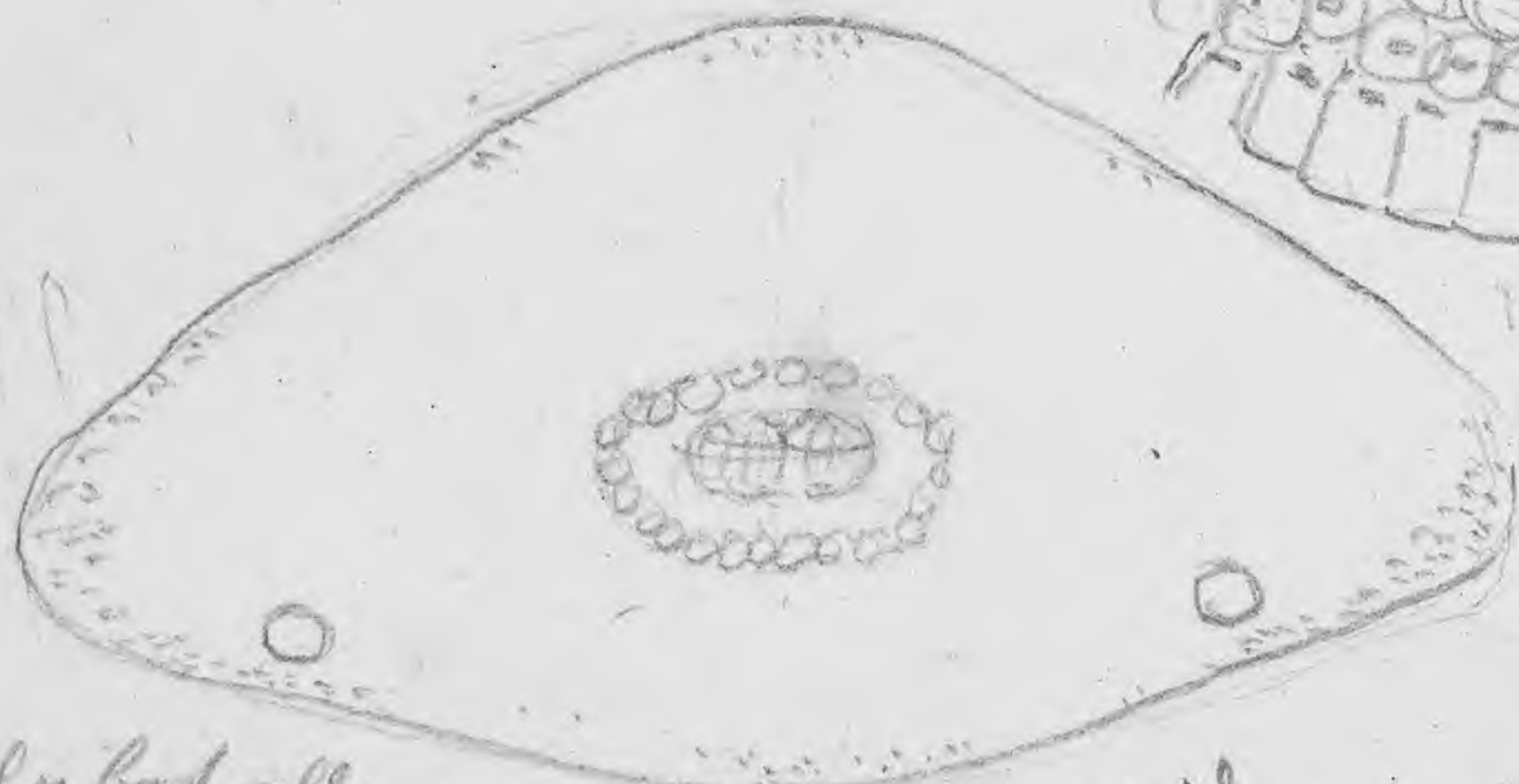
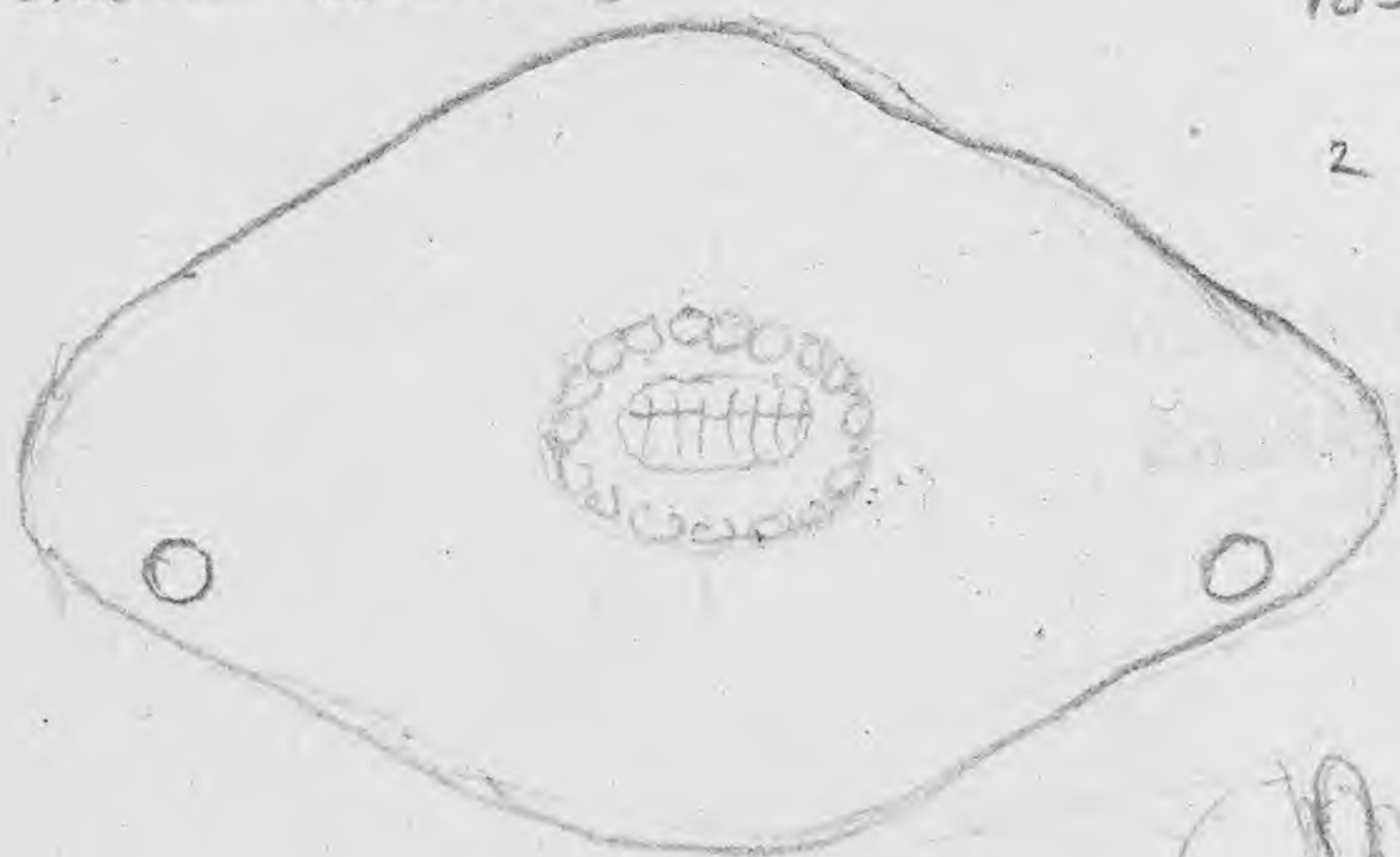
Sierra Valley, Cal. Lammson 1875

Sterile branches of old Tree

one with long, another  
with short leaves

10-12 series of stom  
above

2 bands of 6-7 series  
below



foliar bud cells principally at 4 ridges, more crowded  
at the sides - very few others

duct surrounded (clothed)  
with a layer of very thin  
walled cells. around this  
another layer of thicker walled  
cells, both oval in section

12660

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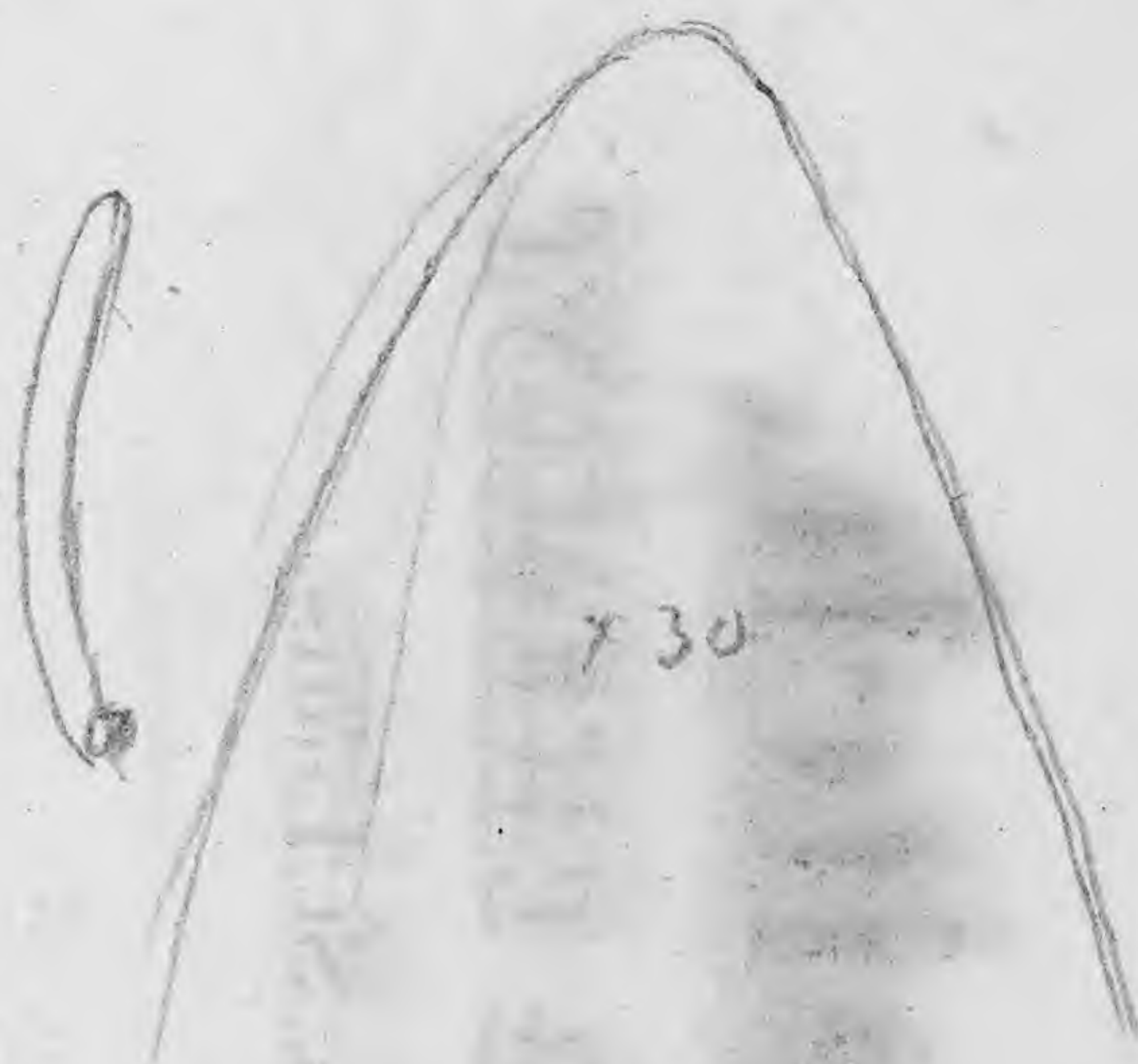
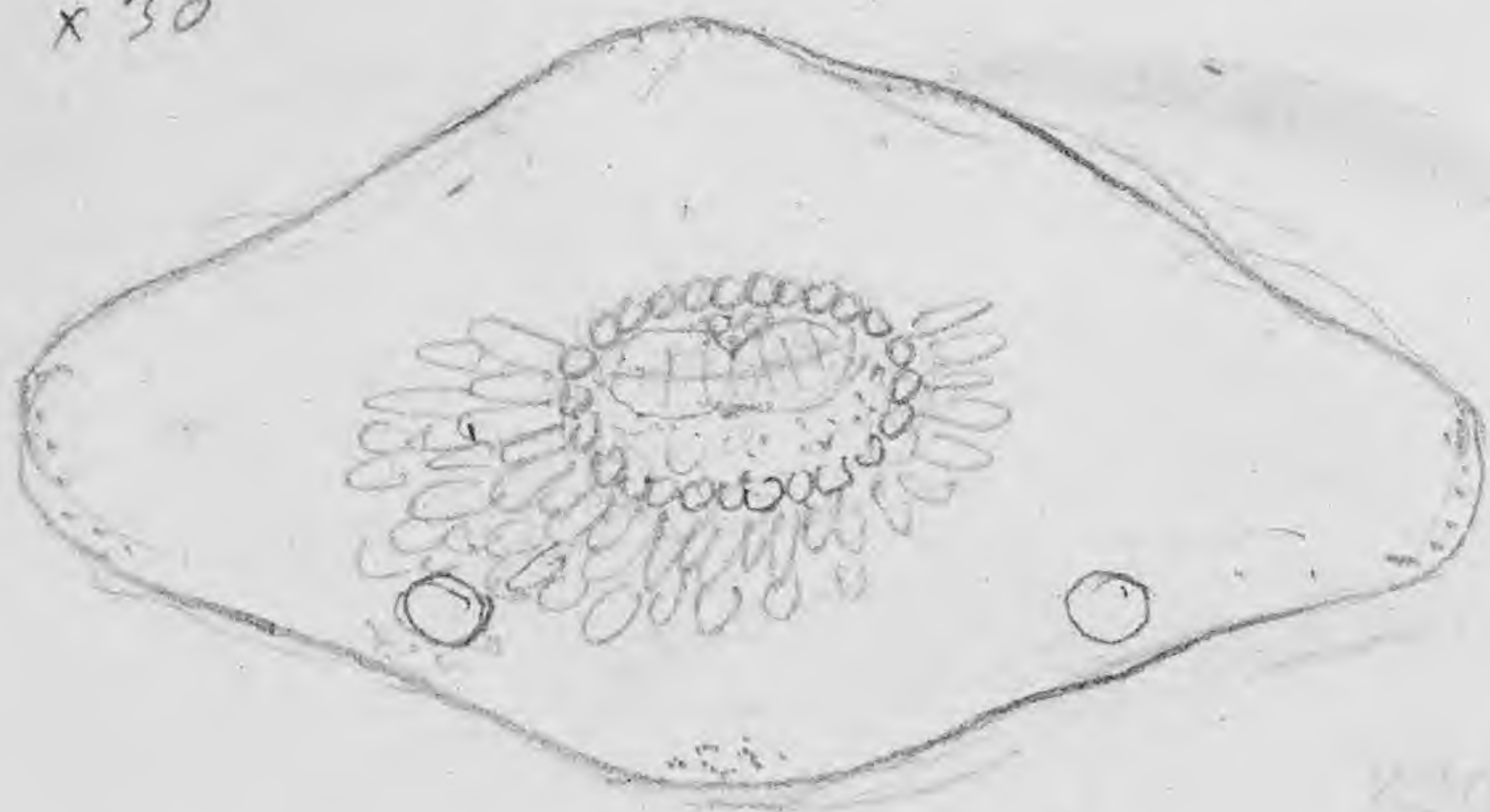
MISSOURI  
BOTANICAL  
GARDEN

C

*A megacarpa*  
leaf of a vigorous shoot  
Lemmon 1875

Febr 20 1876

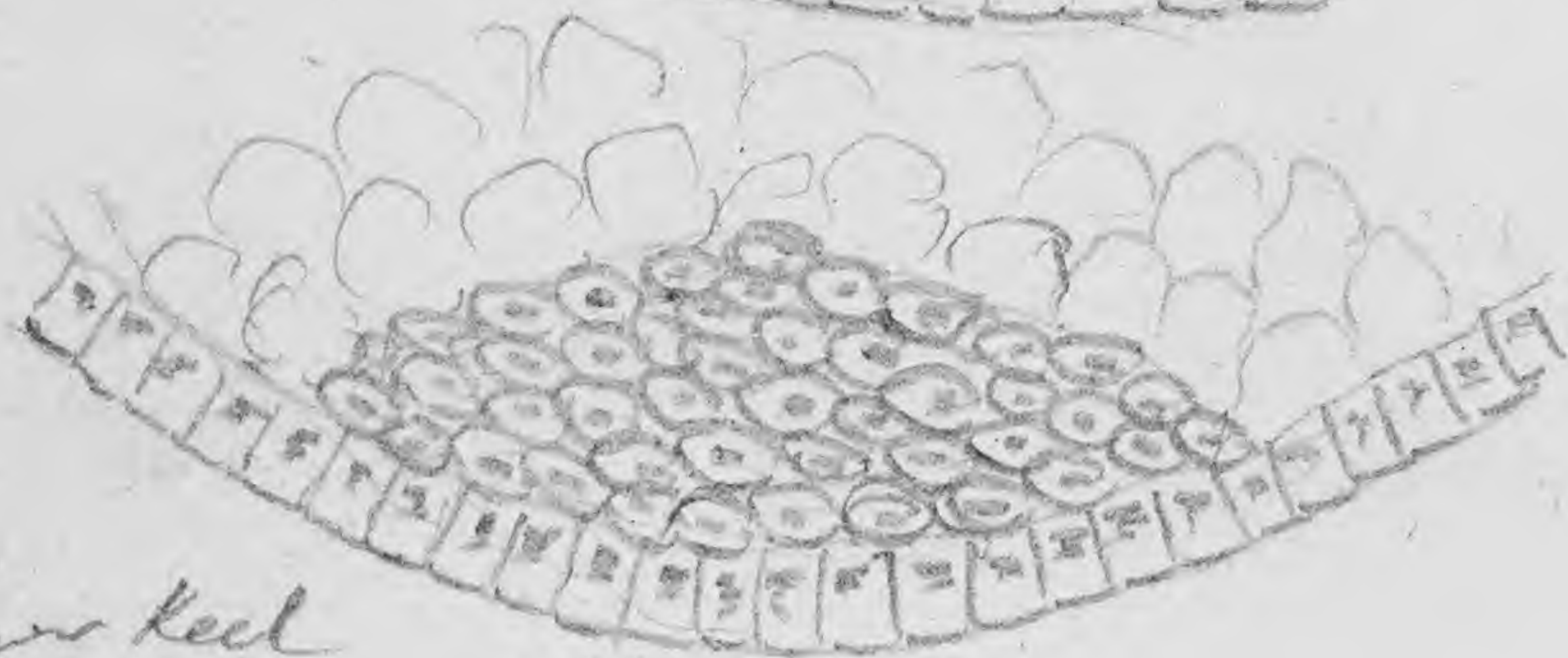
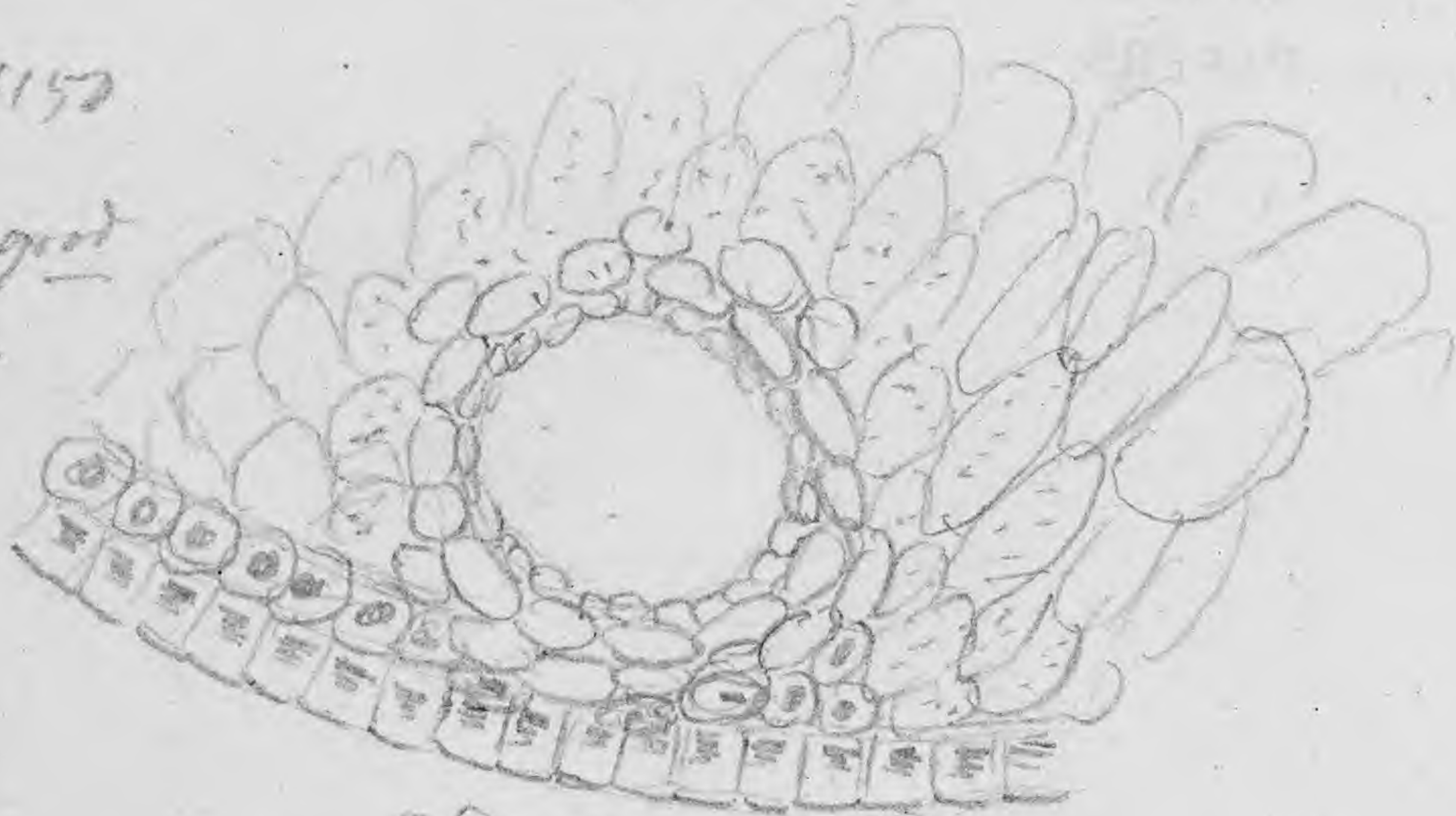
x 30



x 30

x 150

good



Lower Keel

x 150

Hypoderm cells on all carinae,  
most below  
about 12 lines of stomata above  
4-5 in each band below



0 1 2 3 4 5 6 7 8 9 10

cm

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MISSOURI BOTANICAL GARDEN  
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12661



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cm

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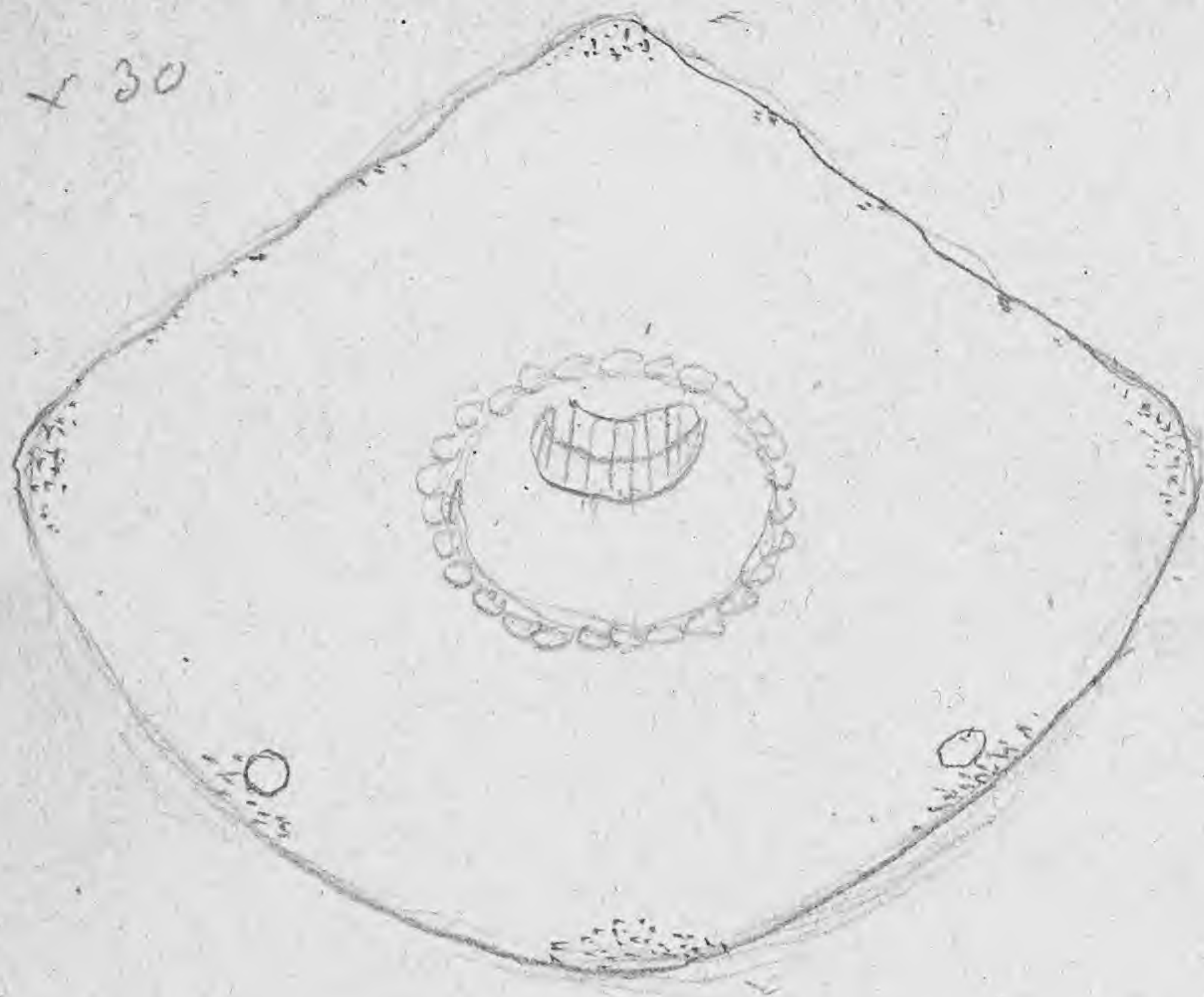
MISSOURI  
BOTANICAL  
GARDEN

e

*Abies magnifica*  
leaves from fertile branch  
December 1875

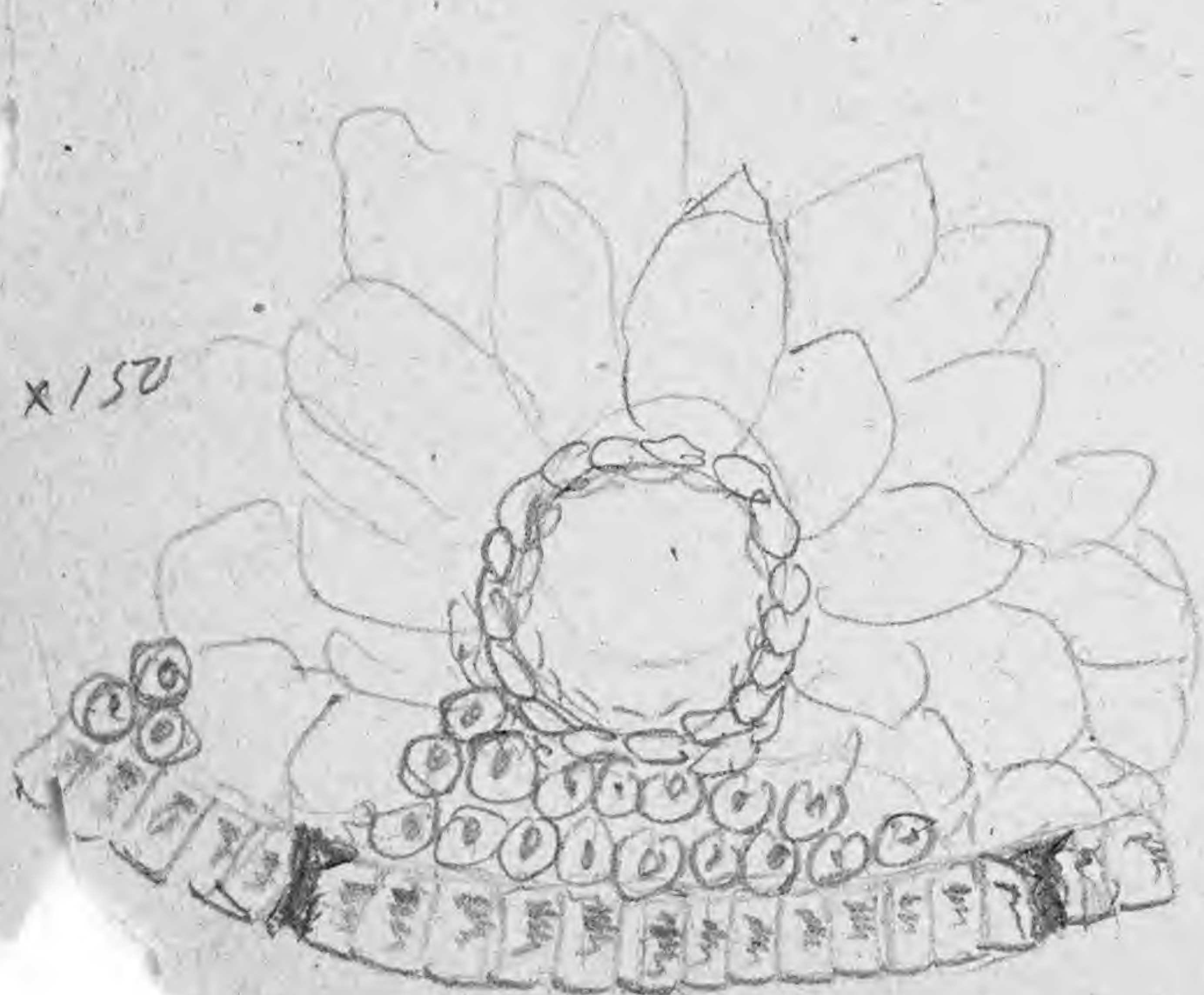
Feb 20 1876

x 30

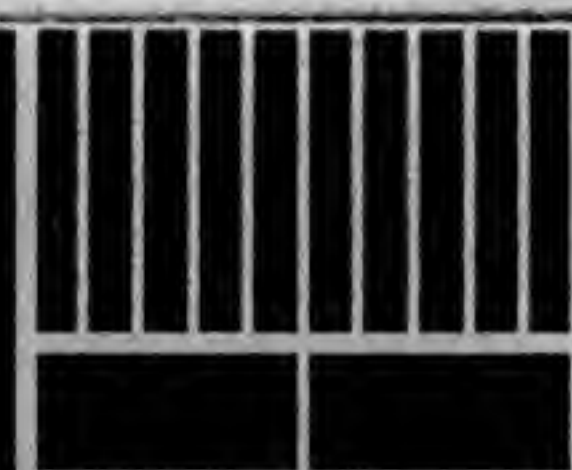


12-14 lines of stomata above  
3-4 lines in 4 bands below.  
bands separated by epidermis (green  
underlaid and strengthened by hypo-  
dermic layers)

x 150



on the 4 angles heavy layer of hypodermis,  
less thick, 2-4 and even 5 cells thick —  
less so under the ducts,  
also some clusters on the upper surface  
fewer on the lower.  
leaves of male branch yet shorter & otherwise similar  
All the thicker, upper leaves with similar  
4 bands of stomata below



0 1 2 3 4 5 6 7 8 9 10

cm

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BOTANICAL  
GARDEN

12662

**CHEMIST**

**ALEX. LEITCH,**  
**APOTHECARY & CHEMIST,**  
Cor. 4th and Olive Sts., St. Louis.

**ALL THE NEW REMEDIES**  
**CONSTANTLY ON HAND**

MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



0 1 2 3 4 5 6 7 8 9 10

cm

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*Aleur magnifica*

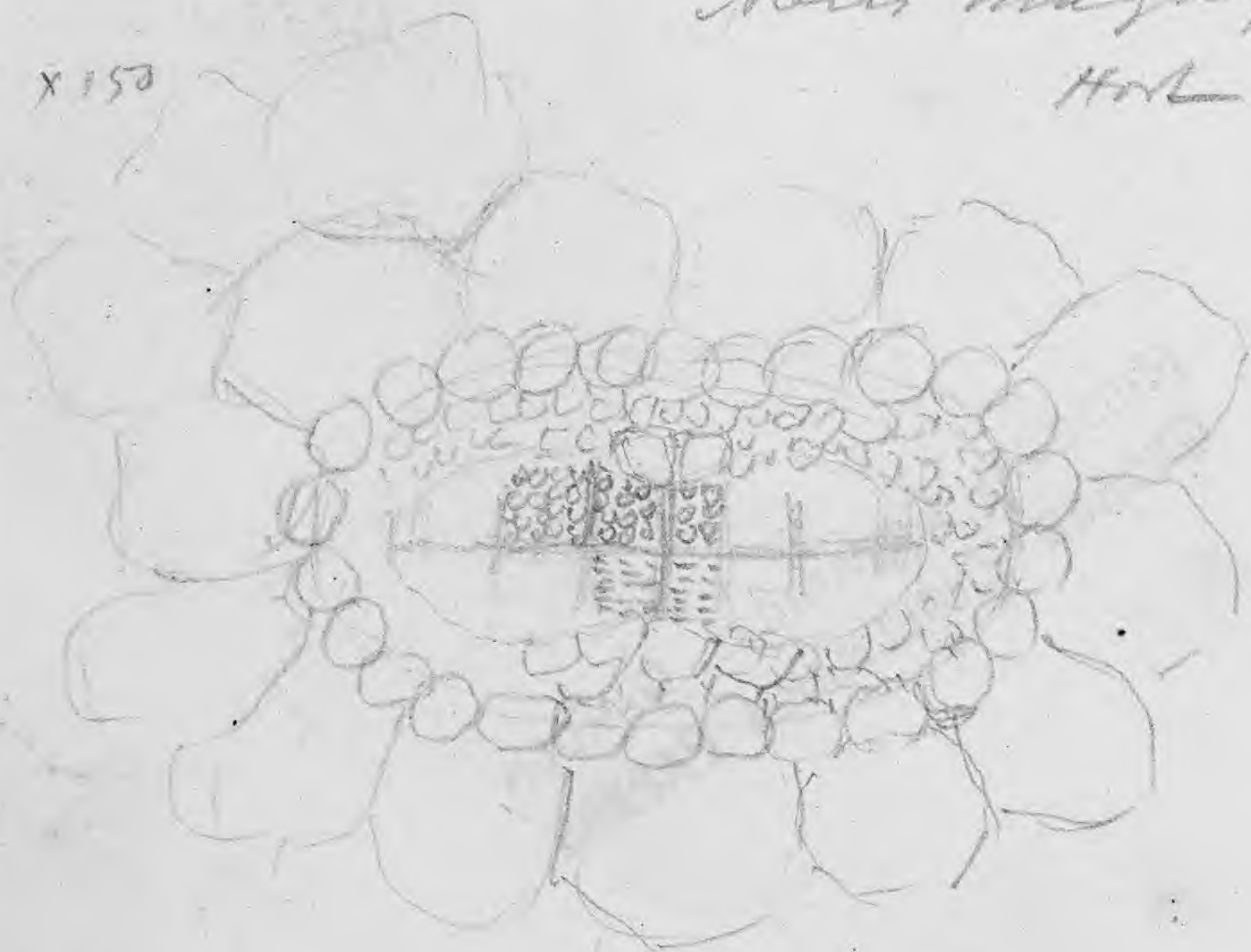
Febr 20 1876

Hort. Edinburgh Aug 20 1869

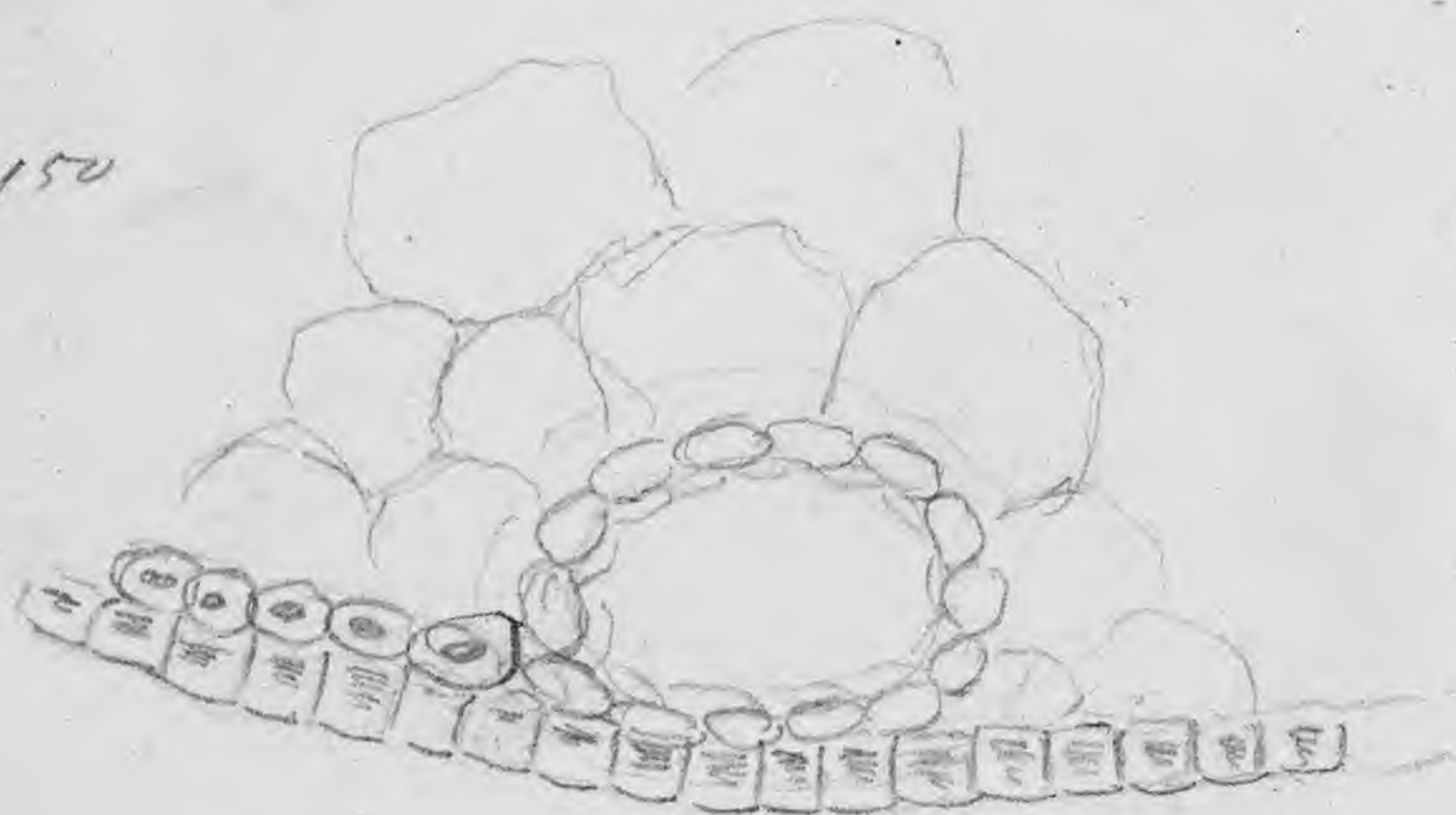
young tree

hypodermis on all 4 carinae

x150



x150



0 1 2 3 4 5 6 7 8 9 10

cm

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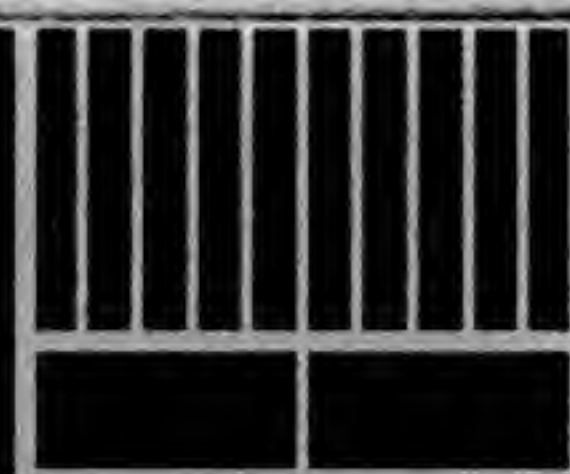
MISSOURI  
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GARDEN

12663

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**APOTHECARY & CHEMIST,**

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MISSOURI BOTANICAL GARDEN  
GEORGE ENGELMANN PAPERS



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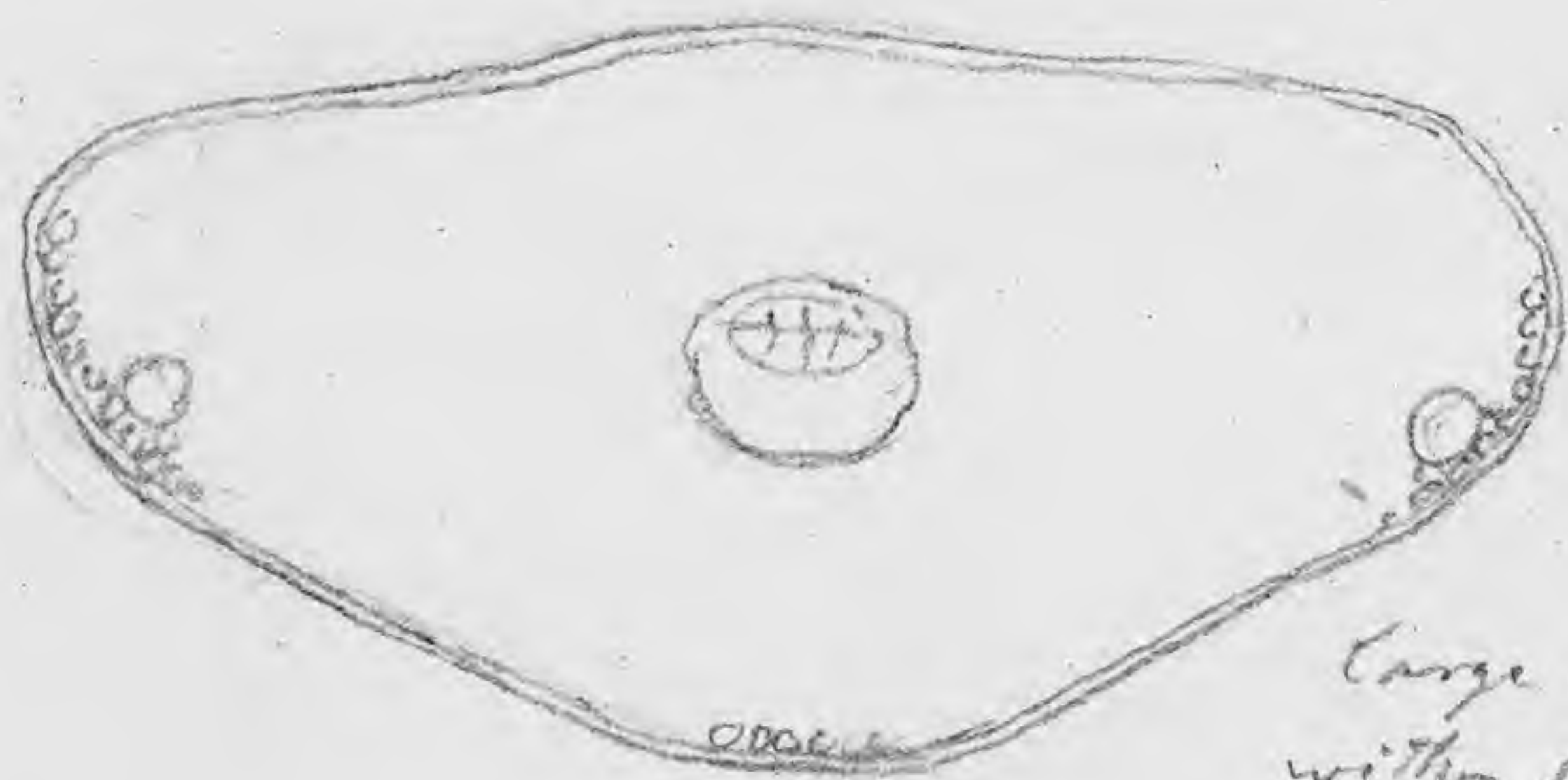
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*Abies magnifica*

April 1<sup>st</sup> 1881  
6 inches high, probably 5 years old  
Sierra, Oct 1880

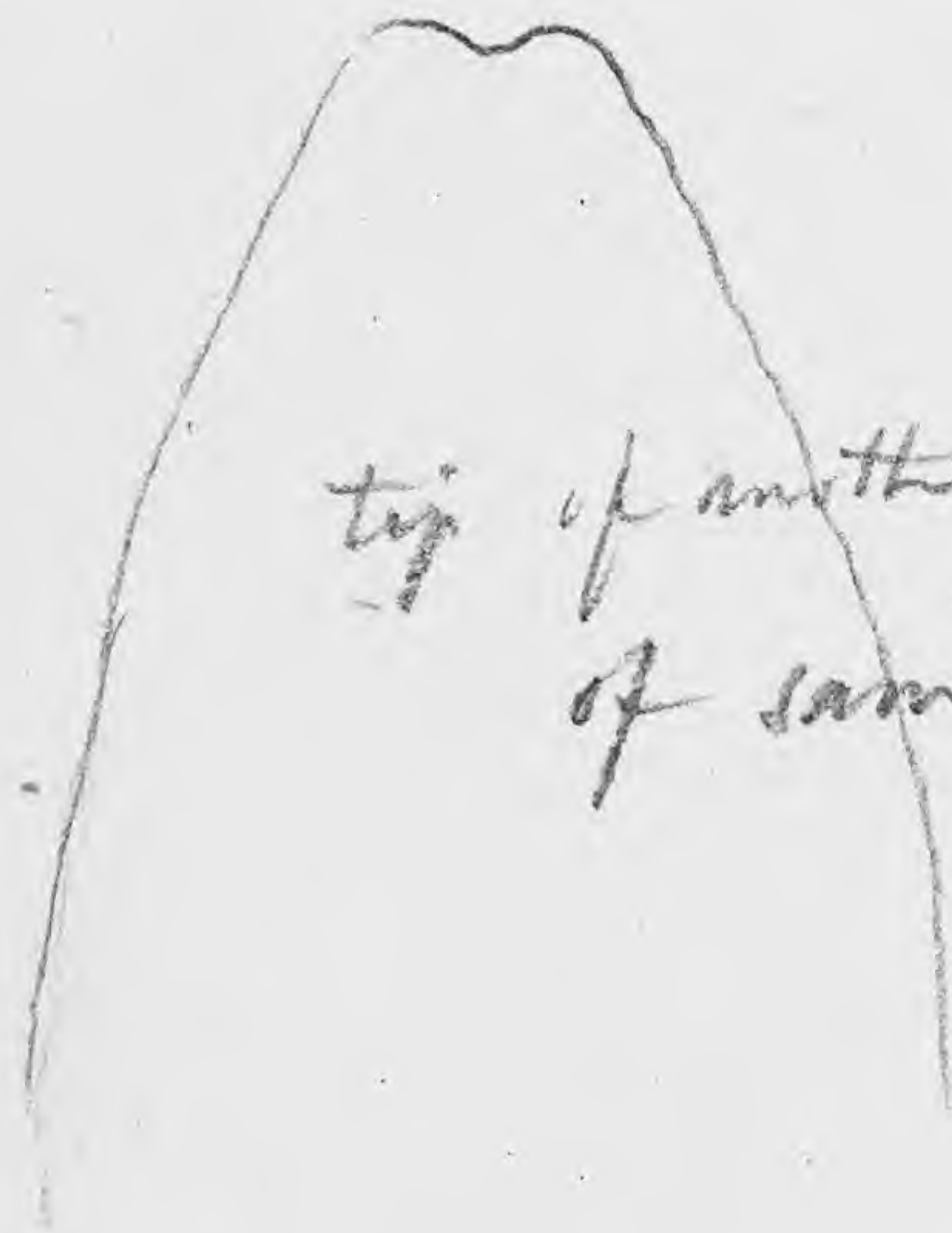


large cells  
with sheath

x 30



tip



tip of another leaf  
of same specimen  
rarely a little  
notched



0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN

12664

Leitch & Corlies

DRUGGISTS

South-west  
Corner Fifth and Market  
Streets

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0 1 2 3 4 5 6 7 8 9 10

cm

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GARDEN